

**Ex-Post Project Evaluation 2021:
Package III-1(Ghana, Sierra Leone)
Evaluation Reports**

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Republic of Ghana

FY2021 Ex-Post Evaluation Report of
Japanese Grant Aid Project

“The Project for the Construction of Advanced Research Center for Infectious Diseases at
Noguchi Memorial Institute for Medical Research”

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Foundation for Advanced Studies on International Development

0. Summary

This project was intended to improve the research, testing and educational functions of the Noguchi Memorial Institute for Medical Research (hereinafter referred to as the NMIMR) by constructing the Advanced Research Center for Infectious Diseases (ARC¹), thereby contributing to strengthening the capacity to respond to infectious diseases in Ghana and West Africa as a whole. This project was in line with Ghana’s development policy and development needs, as well as Japan’s development cooperation policy at the time of planning, as it aimed to contribute to capacity strengthening of Ghana and West Africa to respond to infectious diseases, through improving the functions of the NMIMR. Synergies between this project, a Science and Technology Research Partnership for Sustainable Development (SATREPS) program, and the Third-country Training were anticipated at the time of planning, and synergies were observed when these projects were implemented as planned. Although there has been no collaboration or coordination at the time of planning for projects other than JICA, training by other donors and research with Japanese universities were implemented at ARC due to coordination at the time of implementation, and mutual linkage was recognized. Therefore, its relevance and coherence are high. The outputs of this project were mostly achieved. Although the project period exceeded the plan, the project cost on the Japanese side was within the plan. Therefore, efficiency of the project is high. Regarding the project objective, i.e., improvement of the NMIMR’s function, the indicators for both quantitative and qualitative effects have been achieved, and the expected impact has been realized. Therefore, effectiveness and impacts of the project are high. Slight issues have been observed in the technical aspect concerning the operation and maintenance of the project. However, there are good prospects for improvement/resolution. Therefore, sustainability of the project effects is high. In light of the above, this project is evaluated to be highly satisfactory.

¹ People associated with the NMIMR often call it by the abbreviation ARL (Advanced Research Laboratories).

1. Project Description



Project Location

(Source: developed by the evaluator)



The whole view of ARC at NMIMR

(Source: photo taken by the evaluator)

1.1 Background

At the time of planning, the Ministry of Health, Ghana formulated a development plan to achieve the Millennium Development Goals (MDGs) and was working on measures against infectious diseases and aiming to improve the health of pregnant women and children under the age of five. Furthermore, lifestyle-related diseases were becoming an issue due to changes in the disease structure. The NMIMR was established in 1979 with support from Japan as a medical research institute that conducts research, surveys, and special tests, and fosters researchers to address these health issues. Japan's grant aid and technical cooperation over many years have improved its research capabilities, making it an institute that can widely contribute to international infectious disease control issues, including those in West Africa. As a result, the NMIMR addressed research on nutrition issues, cancer, and vaccine development in addition to research on major infectious diseases such as HIV/AIDS, malaria, tuberculosis, and neglected tropical diseases (NTDs), in collaboration with international organizations, government agencies, NGOs, universities, and so on. During the calamity of Ebola haemorrhagic fever that started in 2014, the NMIMR diagnosed many suspected cases as the only laboratory that can test for Ebola haemorrhagic fever in Ghana. Along with the increase of these activities, the number of personnel (including researchers) increased sharply, with an annual average increase of about 5%. In particular, development in the field of molecular biology was remarkable, and demand expanded. In addition, the number of surveys related to infectious disease control and the number of interns accepted increased. On the other hand, the existing facilities' capacity became insufficient, which

hindered the required research and examination/diagnosis work. In addition, aging facilities and equipment made it difficult to conduct work safely and effectively, and there was concern that the quality of research would decline.

Under these circumstances, to further improve the NMIMR's research, inspection, and educational capacities, the government of Ghana requested that the government of Japan provide grant aid for the construction of an additional laboratory building and the provision of research equipment.

1.2 Project Outline

The objective of this project is to improve the NMIMR's research, testing, and educational functions by constructing the Advanced Research Center for Infectious Diseases, thereby contributing to a stronger capacity to respond to infectious diseases in Ghana and all of West Africa.

<Grant Aid Project>

Grant Limit / Actual Grant Amount		2,285 million yen / 2,182 million yen
Exchange of Notes Date / Grant Agreement Date		May 2016 / May 2016
Executing Agency		NMIMR
Project Completion		March 2019
Target Area		Accra City
Main Contractors	Construction	Shimizu Corporation
	Equipment	Sirius Corporation
Main Consultants		NIHON SEKKEI, INC., Fujita Planning Co., Ltd.
Preparatory Survey		February 2015–October 2015
Related Projects		Technical Cooperation Project - Noguchi Memorial Institute Project (Phase I & Phase II) (1986–1997) - The Infectious Disease Project at Noguchi Memorial Institute for Medical Research in Ghana (1999–2003) - West African Centre for International

	Parasite Control (WACIPAC) Project (2004–2008) Grant Aid Project - Postgraduate Medical Research Institute, University of Ghana Medical School (1977) - “The Project for Improvement of Noguchi Memorial Institute for Medical Research (Phase 1 & Phase 2) (1998)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Mayumi Hamada, Foundation for Advanced Studies on International Development (FASID)

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: December 2021–March 2023

Duration of the Field Study: May 23, 2022–June 9, 2022,

September 11, 2022–September 17, 2022

3. Results of the Evaluation (Overall Rating: A²)

3.1 Relevance/Coherence (Rating: ③³)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Ghana

At the time of planning, *Ghana Shared Growth and Development Agenda II (2014–2017)*, the country’s national development plan, stipulated that it would intensify advocacy to reduce infectious diseases such as malaria, HIV/AIDS, and tuberculosis (TB).⁴ In addition, among the six policy goals set in the *Health Sector Medium Term Development Plan* (hereinafter referred to as *HSMTDP*) 2014–2017, Goal 5 (strengthening of a national system to achieve the MDGs and ensure sustainability of results, including expanding the implementation of the National Strategic Plan for Control of TB, AIDS, etc.) and Goal 6 (strengthening the prevention and control of non-infectious and infectious diseases, including eradicating polio and strengthening comprehensive

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

³ ④: Very High, ③: High, ②: Moderately Low, ①: Low

⁴ *Ghana Shared Growth and Development Agenda II 2014-2017* p221

communicable disease surveillance) matched the NMIMR's function and role.

At the time of the ex-post evaluation, the *National Medium-term Development Policy Framework (2022–2025)* indicated its goal in social aspect that high-quality universal health coverage accessible to all should be ensured and morbidity, mortality, sexually transmitted diseases, HIV/AIDS, and other infectious diseases be reduced. In addition, *HSMTDP 2018-2021* set a goal of taking measures against infectious diseases in “Coverage of essential health services”, while *HSMTDP 2022–2025* referred to enhancing the management and quality of national laboratories and infectious disease centres as a part of improving the quality of medical services and information management. *Ghana's Roadmap for attaining Universal Health Coverage 2020–2030* also listed diseases to be eradicated, such as onchocerciasis, yaws, yellow fever, and schistosome. Furthermore, it pointed out that polio, lymphatic filariasis, trachoma, and measles should be kept under high surveillance to avoid exacerbation, and spread of cholera and meningitis be controlled at levels that do not pose public health problems. Thus, at the time of the ex-ante and ex-post evaluations, this project has been consistent with Ghanaian policy.

3.1.1.2 Consistency with Ghana's Development Needs

At the time of planning, infectious diseases such as malaria, bronchitis, HIV/AIDS, and diarrhoea accounted for more than 70% of major diseases in Ghana. At the time of the ex-post evaluation, malaria, bronchitis, and HIV/AIDS still ranked high among the number of people infected with infectious diseases.⁵ The importance of measures against infectious diseases remains high, particularly due to the COVID-19 pandemic and emergence of new variant strains.⁶ The number of people infected with COVID-19 in Ghana and its neighbouring countries in the West African region is shown in Table 1. Compared to neighbouring countries, Ghana has a higher number of infected people per 100,000 individuals. In addition, at the beginning of the outbreak in Ghana in 2020, the NMIMR's laboratory was the only one laboratory, which could conduct PCR Tests. Therefore, at the time of planning and ex-post evaluation, this project was consistent with the development needs of Ghana and West Africa.

⁵ Interview with Ministry of Health

⁶ Questionnaire to Ghana Health Service

Table 1 Number of People Infected with COVID-19

(Unit: persons)

Country	Cumulative Number of Infected People	Cumulative Number of Infected People per 100,000
Ghana	168,580	543
Cote d'Ivoire	86,760	329
Togo	38,517	465
Guinea	37,470	285
Benin	27,490	227
Burkina Faso	21,128	101
Liberia	7,883	156
Sierra Leone	7,747	97

Source: <https://covid19.who.int/WHO-COVID-19-global-table-data.csv>⁷

3.1.1.3 Appropriateness of the Project Plan and Approach

Sufficient gender consideration was given during the planning and implementation stages so that women would not be disadvantaged. Consideration was also given to avoid disadvantages of people with disabilities, such as installing an elevator.⁸ Including these issues, no problems were found in the planning and approach of this project.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan's ODA Policy

In the *Country Assistance Policy for the Republic of Ghana (2013)* and *JICA Country Analysis Paper (2013)*, which were valid at the time of planning, health was a priority area, and measures against infectious diseases were planned to achieve MDG6. Therefore, at the time of planning, this project was consistent with Japan's aid policy.

3.1.2.2 Internal Coherence

At the time of planning, the JICA Ghana Office assumed synergetic effects between this project, a SATREPS, and the Third-country Training shown in Table 2.⁹

⁷ Accessed on September 5, 2022

⁸ Questionnaire to and Interview with the NMIMR

⁹ Questionnaire to JICA Ghana Office

Table 2 Related JICA Projects

	Category	Name	Duration
1	SATREPS	The Project for Surveillance and Laboratory Support for Emerging Pathogens of Public Health Importance	2016-2022
2	Third-country Training	Third Country Training Course on Enhancing Laboratory Skills for Infectious Diseases in West African Countries for Post Ebola	2018-2021
3	Third-country Training	Third Country Training Course on Enhancing Testing Skills for Infectious Diseases in West African Countries	2021-2024

Source: JICA Website (<https://www.jica.go.jp/oda/project/1500611/index.html>),¹⁰ Questionnaire to JICA Ghana Office

The relationships and synergetic effects between each project in Table 2 and this project are as follows.¹¹

Regarding 1 in Table 2, there was a direct synergetic effect in that it became possible to conduct high-quality research by using the facilities and equipment provided by this project. As for 2, it is recognized this project has made it possible to conduct training using advanced facilities and equipment at ARC. In addition, ARC has a training room and a training lab, and it was very beneficial to be able to accept more trainees. In light of the above, effects were expected through collaboration with other JICA projects at the planning stage, although specific targets were not set for the expected effects. After project completion, other JICA projects involved research and training by utilizing the ARC effectively. This shows the improved function of the NMIMR (the project's objective) and contributed to enhancing its capacity to respond to infectious diseases in Ghana and West Africa (expected impact).

3.1.2.3 External Coherence

At the time of planning, the Danish International Development Agency, the Bill & Melinda Gates Foundation, the U.S. Centers for Disease Control and Prevention, the U.S. National Institutes of Health, the Volkswagen Foundation, and others were conducting joint research with the NMIMR in the field of infectious diseases.¹² However, evidence was not found that planning, coordination, or agreement were made in advance regarding the specific effects of collaboration between this project and others. In addition, in the *Yokohama Plan of Actions* adopted at the 5th Tokyo International Conference on African Development (TICAD V, 2013), infectious disease control was a priority item in the health sector.¹³

Regarding collaboration with other organizations after project completion, the NMIMR conducted a genetic analysis training (for two weeks, with 10 participants from neighbouring countries) by utilizing ARC in collaboration with the West Africa Health Organization (WAHO)¹⁴ and the African Center for Disease Control and Prevention (Africa CDC), contributing to COVID-

¹⁰ Accessed on January 31, 2022

¹¹ Questionnaire to and Interview with the NMIMR, Questionnaire to JICA Ghana Office

¹² The Ex-ante Evaluation Sheet, p2

¹³ TICAD V Yokohama Plan of Actions 2013–2017

¹⁴ WAHO is a specialized institution of Economic Community of West African States (ECOWAS).

19 countermeasures in neighbouring countries.¹⁵ As for collaboration with Japanese organization other than JICA, a project titled “the Establishment of Network for Research and Control of Infectious Diseases based on the Research Center in West-African Subregion”¹⁶ was conducted at the NMIMR. This project was a part of the Japan Agency for Medical Research and Development (AMED)’s “Japan Initiative for Global Research Network on Infectious Diseases” (J-GRID). Even after the completion of this project, the infectious disease research project at the Tokyo Medical and Dental University in Ghana was continuing at the time of the ex-post evaluation, utilising ARC and receiving financial support from local Japanese companies.¹⁷ Although specific collaboration/coordination was not envisaged at the time of planning for these projects, synergetic effects in training and research can be observed through collaboration/coordination after the project completion. In addition, at the time of the ex-post evaluation, six Japanese universities and research institutes were conducting joint research with the NMIMR.¹⁸ Four universities and research institutes (National Institute of Infectious Diseases, TMDU, Mie University/Mie University Hospital, and Ehime University) among the six were conducting research utilising ARC,¹⁹ and harmonisation with this project is observed.

This project is highly consistent with Ghana’s development plan and development needs, and there are no problems with its project plan or approach. In addition to being consistent with Japan’s ODA policy at the time of planning, mutual complementary and synergetic effects can be observed with other projects supported by JICA and other development agencies. Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

3.2.1.1 Japanese Side

(1) Facility construction

The construction of facilities in this project was carried out as planned, except for minor changes (Table 3).

¹⁵ Questionnaire to JICA Ghana Office, Interview with the NMIMR

¹⁶ 2015–2019, Representative Researcher: Prof. Shiroh Iwanaga, Tokyo Medical and Dental University (TMDU), <https://www.amed.go.jp/program/list/01/06/001.html>, accessed on January 31, 2022

¹⁷ Interview with teaching staff at TMDU

¹⁸ National Institute of Infectious Diseases, Kitasato University, Nagasaki University, TMDU, Mie University/Mie University Hospital, Ehime University. Interview with the NMIMR

¹⁹ Interview with the NMIMR

Table 3 Facility Construction Plans and Results

Component	Contents of facilities	
	Plan	Results
ARC	Three-story, 4,597.50 m ² West wing, North wing (See below for details)	Mostly no change, though the BSL-3 Labs became two, while storage space was eliminated.
West wing	Administration dept., student service office, professor room, seminar room, project room, data processing unit room, storage	
North wing	Laboratories, Biosafety Level 3 (BSL-3) laboratory, BSL-3 administrative office, washing room, cold (freezer) room, storage, researcher/research assistant/technician office, seminar room, administration dept.	
Attached wings	372 m ² (See below for details)	
Water tower / Reservoir building	Single-story, 40 m ² Elevated water tank space, water reservoir room, pump room	No change
Sub-station	One-story, 77.65 m ² High tension volt room, transformer room, low tension volt room	No change
Machine building	One-story, 196.23 m ² Generator room, oil tank space (outside of the building), workshop, storage, WC, pump room for septic tank	No change
Septic tank building	One-story, 58.4 m ² Septic tank	No change
Total	4,969.78 m ²	No change

Source: The Ex-ante Evaluation Sheet p2, Preparatory Survey Report p46, Project Monitoring Report²⁰ (April 2019) (2-2 Scope of Work), Questionnaire to the NMIMR

The main changes from the outline design study (O/D) or detailed design study (D/D) are the removal of the storage, the addition of one BSL-3 laboratory room, the change in the position of the maintenance door, layout changes in some offices and laboratories, the change in the planned PCR area, the change of the machine room, the property room moving to an empty space, and the function change from the storage room to the second serological examination room (dark room).²¹ The storage loss is the result of the need for budgetary adjustments to have two BSL-3 laboratories at the request of the NMIMR.²² The reasons for the changes (other than the storage) were area reduction due to more detailed calculations and adjustments, efficiency and procedure optimization, and layout improvement for further safety enhancement.²³ All of these were in line with the NMIMR's requests and were made based on consensus, for which no problems were observed.

²⁰ Regarding the projects approved by the cabinet from November 2015 onwards, the final version of the project monitoring report will replace the project completion report (JICA).

²¹ Project Monitoring Report (2-2 Scope of Work)

²² Interview with the NMIMR

²³ Questionnaire to the implementing consultant

(2) Equipment

Equipment procurement was carried out almost as planned (Table 4). Table 4 shows the major changes from the O/D or D/D Studies.

Table 4 Equipment Procurement Plans and Results

	Plan	Results
Research Equipment	BSL-3 Laboratory: Formaldehyde decontamination unit, autoclave (A), deep freezer (-80°C), refrigerated centrifuge, inverted microscope, CO ₂ incubator, etc.	No change
	Virology dept.: Deep freezer (-80°C), inverted microscope, autoclave (B), biosafety cabinet, centrifuge (various types), fluorescent microscope, flow cytometry (A), etc.	One microplate reader was added, and one fluorescent microscope was removed.
	Bacteriology dept.: Freezer (-20°C), refrigerated microcentrifuge, CO ₂ incubator, deep freezer (-80°C), refrigerated centrifuge (B), biosafety cabinet, fluorescent microscope, etc.	Three pieces of equipment, such as autoclave were added, while technical specification of three pieces of Shaker incubator were revised.
	Immunology dept.: Deep freezer (-80°C), medical refrigerator, refrigerated microcentrifuge, clean bench, fluorescent microscope, ELISpot reader, flow cytometry (B), etc.	Four pieces of equipment, such as CO ₂ incubators, were added, while technical specifications of three pieces of equipment, such as the microplate washer, were revised.
	Common molecular biology laboratory: Clean bench, PCR workstation, thermal cycler, real-time PCR, electrophoresis apparatus, gel imaging system, etc.	One refrigerator/freezer was added, while two pieces of equipment, such as the PCR workstation, were removed.
	Washing room: Autoclave (B), ice maker, dry hot oven, water distiller, etc.	No change

Source: Preparatory Survey Report p46, Project Monitoring Report (Attachment 5)

(3) Consulting services

The D/D Survey and construction/procurement management were implemented as planned.²⁴

(4) Capacity building program (soft component)

Training for maintenance staff was conducted for technical guidance on BSL-3 laboratory equipment. The training was conducted three times, and eight trainees attended (three staff in charge of electricity, three in charge of air conditioning, two in charge of water supply and drainage) as planned. The objectives of the soft component related to proficiency were also achieved (Table 5).

²⁴ The Ex-ante Evaluation Sheet p2, Project Monitoring Report (2-3 Implementing Schedule)

Table 5 The Plan and Results of Soft Components

	Plan	Result
Objective	Properly Operating and Managing the BSL-3 Laboratory Facility Organization	Very well achieved ²⁵
Outputs	1. Understanding the BSL-3 Laboratory Facility System	- ditto -
	2. Mastering the operation of BSL-3 Laboratory Facility System	- ditto -
	3. Maintenance management of BSL-3 Laboratory Facility System	- ditto -
	4. Understanding the summary of biosafety	- ditto -
	5. Acquiring skills for formaldehyde fumigation	- ditto -
	6. Acquiring skills for the High Efficiency Particulate Air Filter (HEPA) filter replacement	- ditto -

Source: Preparatory Survey Report p126, Project Monitoring Report (2-2 Scope of work), Questionnaire to the NMIMR

Note: In the Japanese version of the Preparatory Survey Report, the expression of the objective is described as “The equipment and system of BSL-3 Laboratory facilities are appropriately operated, maintained, and managed”.

In light of the above, the outputs on the Japanese side were achieved almost as planned.

3.2.1.2 Ghanaian Side

All of the items borne by the Ghanaian side were implemented as follows, although some were delayed. Plan 5 was delayed mainly due to the estimation and approval of preliminary expenses associated with changes in the tax exemption system.²⁶

Table 6 Plans and Results of Items Borne by Ghanaian Side

No.	Plan	Result
1	To perform construction (construction except for the planned site, tree planting, installation of telephones, installation of equipment for a PC network and wiring work, high-voltage incoming line to the building’s main circuit breaker, transfer of existing equipment, etc.) and to adjust the design for which the Ghanaian side is responsible	Implemented as planned and scheduled
2	To fully exempt tax for the project	- ditto -
3	To apply and acquire necessary permission for planning and construction.	- ditto -
4	To issue a banking arrangement (B/A) and authorization to pay (A/P) and to bear associated transaction fees	- ditto -
5	To grant a quick landing, tax exemption and custom operation for the equipment at the port of arrival and prompt domestic transport	Implemented though delayed
6	To arrange necessary entry and stay for the Japanese staff delivering the equipment and executing the project in accordance with the ratified contract	Implemented as planned and scheduled
7	To give full exemption from domestic customs and tax for the Japanese staff delivering equipment and executing the project in accordance with the ratified contract	- ditto -

²⁵ In a questionnaire sent to the NMIMR, it was asked to rate degree of achievement on a scale of 5 (5 being the highest), and the answer was 5.

²⁶ Interview with the NMIMR

8	To act for securing the budget for effective operation and maintenance management of the constructed facilities and procured equipment by grant aid	- ditto -
9	To install electricity, water, sewage line, and phone main line until the branch point	- ditto -
10	To transfer and install the existing equipment assigned for the project	- ditto -
11	To procure and install equipment that is not included in Japan's responsibilities	- ditto -
12	To purchase and install laboratory equipment, except for laboratory benches, and necessary office furniture	- ditto -
13	The Ministry of Education of Ghana takes necessary measures to ensure that Japanese juridical persons, Japanese nationals, construction materials, and equipment related to the project are exempt from various duties and taxes.	- ditto -

Source: Preparatory Survey Report p116-p120, Questionnaire to the NMIMR, Questionnaire to the Contractor

3.2.2 Project Inputs

3.2.2.1 Project Cost

The project cost on the Japanese side was within the plan, i.e., 2,182 million yen (95% of the planned 2,285 million yen).

3.2.2.2 Project Period

The project period was from May 2016 to March 2019 (2 years and 11 months—35 months), and exceeded the planned period by 27 months (130% of the plan). This was due to delays in handover of the site, import customs clearance, and additional period for estimation and approval of preliminary expenses associated with changes in the tax exemption system.²⁷

The outputs of this project were mostly achieved as planned. As for inputs, although the project period exceeded the plan, the project cost on the Japanese side was within the plan. Therefore, efficiency of the project is high.

3.3 Effectiveness and Impact²⁸ (Rating: ③)

3.3.1 Effectiveness

The purpose of this project was to improve the NMIMR's functions as a research, testing and educational institution by constructing the ARC. A comparison was made between the plan and the results at the time of the ex-post evaluation, focusing on the quantitative and qualitative effects expected at the time of planning.

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

Table 7 shows the indicators of the quantitative effects and achievement status. Since there is no data for 2022, the data for 2021 was utilized, and data for 2019 and 2020 were obtained.

²⁷ Interview with the NMIMR, Project Monitoring Report (2-3 Implementing Schedule), questionnaire for the contractor

²⁸ When providing the sub-rating, effectiveness and impacts are to be considered together.

Table 7 Operation and Effect Indicators for Quantitative Effects

No.	Indicator	Baseline Value (2014)	Target value (2021) (3 Years After Completion)		Target Value (2019) (Completion Year)	Target Value (2020) (1 Year After Completion)	Target Value (2021) (2 Years After Completion)
1	Total number of research projects* at the three departments (Virology, Bacteriology, Immunology) (cases)	31	36	Total	82	96	107
2	Total number of interns within the three departments (Virology, Bacteriology, Immunology) (persons)	103.7 (Average for 2012 – 2014)	135	Total	278	381	659
				Male	120	166	286
				Female	158	215	373
3	The percentage of foreign student Interns (%)	9.3 (Average for 2012 – 2014)	12	Total	9.55	10.9	11.4
				Male	37.5	43.5	40.8
				Female	62.5	56.5	59.2
4	The number of times people accessed the BSL-3 Laboratory per year (persons)	1,005	1,307	Total	1,329	3,808	6,411
				Male	1,307	3,064	5,545
				Female	22	744	866

Source: The Ex-ante Evaluation Sheet p3, Questionnaire to the NMIMR

Note: * The projects acknowledged by the NMIMR and the data entered into the database of the Statistics Department.

The four indicators set at the time of planning were achieved except for the ratio of foreign interns, and greatly exceeded the target values. At the time of the ex-post evaluation, the actual achievement of Indicator 1 in Table 7 was 297% of the target, Indicator 2 was 488%, and Indicator 4 was 490%, which showed remarkable increase. The ratio of foreigners among interns in Indicator 3, which was slightly below the target, was 95%, with an achievement level that was still high. The reason for the non-achievement was the decrease in the number of intern participants due to the COVID-19 pandemic.

In terms of the number of interns accepted and the ratio of foreigners, women outnumber men. On the other hand, the number of BSL-3 laboratory users has overwhelmingly few women.

This is because there are few female applicants,²⁹ and the interns are selected regardless of gender. The NMIMR and the University of Ghana, with which the NMIMR is affiliated, have fostered an organizational culture in which personnel decisions are made based on ability regardless of gender, and there are many female staff and researchers in important positions.³⁰ Thus, there is no disadvantage due to gender regarding beneficiaries' benefits. Based on the above, the quantitative effects were mostly achieved.

3.3.1.2 Qualitative Effects (Other Effects)

Table 8 shows the three qualitative effects expected at the time of planning and the situation at the time of the ex-post evaluation.

Table 8 Qualitative Effects Compared to the Time of Planning (2015)

	Year			Reason/Causes
	2019	2020	2021	
1 Improvement in research quality conducted by the virology, bacteriology and immunology departments	5	5	5	- The quality of research has improved, and the publication of research papers has increased. The number of research papers has also increased in all three target departments (changes in the number of papers are shown in Table 9).
2 Increase in safety levels at the new BSL-3 laboratory	5	5	5	- No accidents have occurred so far. - Improved facilities and more attentive staff have contributed.
3 Increase in efficiency and accuracy of research through the introduction of the Molecular Biology Common Laboratory	4	4	4	- The work flow was made more efficient by improving the facility (larger space, more accurate equipment, and two sets of safety cabinets). - The equipment used in common by the three target departments was put together as a joint laboratory and separated from other laboratories. This helped improve the efficiency of experiments and prevent contamination.

Source: Questionnaire to and interview with the NMIMR

Notes: 5 *Significantly improved*, 4 *Improved*, 3 *Neither improved nor aggravated*, 2 *Aggravated*, 1 *Significantly aggravated*

The implementing agency recognizes that this project has improved the quality of research in the three target departments, the safety of the BSL-3 laboratories, and the efficiency and accuracy of experiments due to the opening of the molecular biology laboratories. Therefore, the expected qualitative effects have emerged.

Regarding the number of research projects, the number of papers in the three target departments has shown an increasing trend since the completion of this project, as shown in Table 9.

²⁹ Interview with the NMIMR

³⁰ At the time of the Ex-post Evaluation, the president, vice-president, and Director of the NMIMR were women, and many of the leaders of the NMIMR researchers were also women, according to an interview with the NMIMR.

Table 9 The Number of Research Papers in the Three Target Departments

(Unit: cases)

	2019	2020	2021
Virology Department	12	11	21
Immunology Departments	20	32	37
Bacteriology Departments	22	26	62

Source: Questionnaire to and Interview with the NMIMR

3.3.2 Impacts

3.3.2.1 Intended Impacts

At the time of planning, this project was expected to contribute to strengthening the capacity to respond to infectious diseases in Ghana and West Africa as a whole³¹ as its impacts.

(1) Quantitative Effects

Not applicable.

(2) Qualitative Effects

Table 10 shows the contribution of this project as a hub for infectious disease control in Ghana and West Africa (diagnosis of existing and new infectious diseases³², surveillance, etc.) at the time of the ex-post evaluation. The contribution status in all aspects is recognized as very high. A common factor for the improvement in the degree of contribution is the construction of the ARC under this project. Regarding the fostering of young researchers, that the expansion of laboratory space made it possible to train more young researchers and students.³³

³¹ The Ex-ante Evaluation Sheet p2

³² Existing infectious diseases mean the emergence of which are already confirmed in the country, while new infectious diseases mean the emergence of which are newly confirmed.

³³ Questionnaire to NMIMR

Table 10 Contribution to Infectious Disease Control in Ghana and West Africa

		Status at the time of the Ex-post Evaluation	
		Ghana	West Africa
1	Contribution of the NMIMR as a hub of infectious disease surveillance	5	5
2	Contribution of the NMIMR as a hub of diagnosing existing infectious diseases	5	5
3	Contribution of the NMIMR as a hub of diagnosing new infectious diseases	5	5
4	Contribution to fostering young researchers in the field of infectious diseases (research, training)	5	5

Source: Questionnaire to the NMIMR

Note: 5 Significantly increased/highest — 1 Significantly decreased/lowest

Polio is taken as a major example of the existing infectious diseases diagnosed by the NMIMR in Ghana and West Africa, and viral haemorrhagic fever is cited as an example of new infectious disease. Comparing the numbers before and after the implementation of this project, polio increased significantly by 2.6 times in Ghana and by 3.7 times in West Africa (Table 11). The number of diagnoses for viral haemorrhagic fever increased significantly by 4.0 times in Ghana, although there were no data for West Africa (Table 12).

Table 11 Number of Polio Diagnoses by the NMIMR

	2015	2021	Increase / Decrease
Ghana	719	1,892	263%
West Africa	1,265	4,704	371%

Source: NMIMR

Table 12 Number of Cases of Viral Haemorrhagic Fever Diagnosed by the NMIMR

	2015	2021	Increase / Decrease
Ghana	996	4,022	403%
West Africa	N/A	N/A	N/A

Source: NMIMR

Regarding the implementation status of training for young researchers in the field of infectious diseases in Ghana and West Africa, the NMIMR trained 299 young Ghanaian researchers and 15 young West African researchers in 2021. Data on training conducted before the project was unavailable (Table 13).

Table 13 Number of Participants in Training for Young Researchers at the NMIMR

(Unit: persons)

	2015	2021	Increase / Decrease
Ghana	N/A	299	N/A
West Africa	N/A	15	N/A

Source: NMIMR

Column: The Positioning of This Project in the COVID-19 Crisis

In March 2020, Ghana confirmed its first case of COVID-19—one year after March 2019, when the ARC was completed by this project.

At that time, the NMIMR was the only institution in Ghana that could conduct PCR tests for COVID-19, and it conducted 80% of the tests in Ghana in the early stages of the spread of infection. It conducted 350,579 PCR tests in 2020 and 152,009 in 2021.³⁴ A major factor that made this possible was the construction of the ARC under this project, which provided two new BSL-3 laboratories and equipment. This has made it possible for many technicians to perform a large number of PCR tests simultaneously using the latest facilities and equipment. Due to the urgent need to respond to a large number of cases, a large number of staff was hired in a short period of time, and inspections were conducted 24 hours a day under a shift system. The staff of the NMIMR responded to this by staying overnight.

In addition, the NMIMR collaborated with the Ministry of Health and the Ghana Health Service (GHS) to provide training on COVID-19 testing for domestic laboratories. As mentioned above, when the COVID-19 crisis broke out in Ghana, the NMIMR had the only laboratory that could perform PCR tests. In order to meet the growing need for testing, the NMIMR provided training to 56 domestic laboratories,³⁵ greatly contributing to the increase in the number of laboratories capable of PCR testing.

In addition to PCR testing, the NMIMR has contributed to the control of infectious diseases in Ghana through genetic analysis, surveillance, and other means. Furthermore, the NMIMR conducted training on methods for testing and analysis for laboratory technicians from neighbouring countries.³⁶ This contributed to strengthening the capacity of neighbouring countries to respond to COVID-19.

In this way, this project has significantly contributed to the NMIMR's testing, surveillance, and training in the fight against COVID-19. At the same time, it is noteworthy that the NMIMR's high-quality research and testing capacity made this contribution possible. The NMIMR made full use of state-of-the-art facilities and equipment, and the Ghanaian

³⁴ Questionnaire to NMIMR

³⁵ National Strategic COVID-19 Response Plan (2020 - 2024) p14, Interview with NMIMR

³⁶ Questionnaire to JICA Ghana Office

government and the NMIMR promptly made decisions and responded. The NMIMR staff also showed sincerity in crisis response.

Based on the above, the NMIMR's contribution as a hub of infectious disease control in Ghana and West Africa is high.

3.3.2.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

At the time of planning, this project was classified as Category C based on “the JICA Guidelines for the Confirmation of Environmental and Social Consideration” (2010),³⁷ as the negative environmental impact of this project was assessed as minimal. An environmental impact survey appears to have been conducted prior to project implementation, but no records of the survey could be obtained. No negative impacts on the environment were confirmed even after project completion.³⁸

(2) Resettlement and Land Acquisition

This project consisted of the construction of facilities on the premises of the NMIMR, and no land acquisition or resettlement was planned. It did not occur during its implementation.³⁹

(3) Gender Equality, Marginalized People, Social Systems and Norms, Human Well-being and Human Rights

At the time of planning, these specific impacts were not assumed, and no significant impact by the implementation was confirmed.⁴⁰

(4) Unintended Positive/Negative Impacts

The three indicators in Table 14 measure the strengthening of the functions of the NMIMR's nine research departments as a whole. In this project, it was aimed to construct the ARC including a new BSL-3 laboratory on the premises of the NMIMR and to procure research equipment. After completion, it was planned to relocate the three departments of virology, immunology, and bacteriology to the ARC. Meanwhile, the other six research departments and administrative departments aimed to expand the respective departments and to strengthen their functions through continuous usage of the existing NMIMR facilities and the vacant rooms which used to be utilized by the three departments. The NMIMR planned to renovate the existing BSL-3 laboratory partially and to use it as a training facility for BSL-2 and BSL-3 level experimental

³⁷ The Ex-ante Evaluation Sheet p2

³⁸ Questionnaire to and Interview with the NMIMR

³⁹ Questionnaire to the NMIMR

⁴⁰ Questionnaire to the NMIMR

and maintenance techniques. In addition to the implementation of this project, the quantitative indicators shown in Table 14 were set as the impacts to be achieved on the NMIMR side through the implementation of the above plan, including the renovation of the BSL-3 laboratory.⁴¹

Table 14 Expected Impact on the NMIMR as a Whole

Indicator	Unit	Baseline		Target Value (2021) 3 Years After Completion	Actual Value (2021)
		Baseline Year	Value		
Total number of research projects conducted at the whole NMIMR	cases	2014	88	101	107
Increase in Research Project Overhead	Ghana Cedi	Average of 2012 – 2014	1,595,120	2,074,000	3,720,000
Number of diseases the NMIMR recognizes as a national/regional reference centre	Number of diseases	2014	4 (TB, buruli ulcer, polio, influenza)	5	9*

Source: Preparatory Survey Report p147, Questionnaire to the NMIMR

Notes: *The NMIMR's reference laboratories at the time of the ex-post evaluation are as follows: TB, buruli ulcer, polio, influenza, HIV, yellow fever, haemorrhagic fever, rotavirus, COVID-19

As mentioned above, all three impacts on the NMIMR as a whole, which were expected to be achieved at the time of planning, have achieved their target values. In addition, the renovation of the existing BSL-3 laboratory, which was planned as a task on the NMIMR side, was carried out as planned.⁴²

Based on the above, the expected quantitative and qualitative effects have emerged. As a hub of infectious disease control in Ghana and West Africa, the NMIMR has contributed highly, and other positive impacts have also emerged. Therefore, effectiveness and impacts of the project are high.

⁴¹ Preparatory Survey Report, p vi, p147

⁴² Questionnaire to the NMIMR

Column: Positioning of this project in the continuity of past multiple aid projects

The WAHO has stated that the ARC built at the NMIMR under this project is an asset not only for Ghana but also for West Africa.⁴³ In addition, the contribution of the NMIMR to the COVID-19 crisis has attracted international attention, as the prime minister of Japan mentioned at the United Nations General Assembly.⁴⁴ On the other hand, the advanced capacities of the NMIMR, which make full use of the state-of-the-art facilities and equipment developed through this project for research, testing, and training, is the result of JICA’s long-term cooperation came to fruition.

Since the establishment of the NMIMR with Japanese assistance in 1979, Japan has provided various types of support for capacity building through grant aid and technical cooperation. Major examples are shown in Table 15.

Table 15 Examples of JICA Projects for the NMIMR

Names of Projects	Scheme	Duration
Project for Medical Cooperation to Medical School, University of Ghana	TC	1969 – 1973
- ditto – (Phase 2, Phase 3, and Phase 4)	TC	1973 – 1985
Postgraduate Medical Research Institute, University of Ghana Medical School	GA	1977 – 1978
Noguchi Memorial Institute Project Phase I	TC	1986 – 1991
Noguchi Memorial Institute Project Phase II	TC	1991 – 1997
The Project for the Improvement of the Noguchi Memorial Institute for Medical Research (Phases 1 & 2)	GA	1998
The Follow-up Survey and Follow-up Cooperation for the Project for the Improvement of Noguchi Memorial Institute for Medical Research	GA	2017 – 2018
The Infectious Disease Project at Noguchi Memorial Institute for Medical Research in Ghana	TC	1999 – 2003
West African Centre for International Parasite Control (WACIPAC) Project	TC	2004 – 2008
Studies of Anti-viral and Anti-parasitic Compounds from Selected Ghanaian Medicinal Plants	TC	2010 – 2015
The Project for Surveillance and Laboratory Support for Emerging Pathogens of Public Health Importance	TC	2016 – 2021
Partnership for Building Resilience against Public Health Emergencies through Advanced Research and Education (PREPARE)	LT	2018 -
Project for the Improvement of Safety and Quality Management Systems in Noguchi Memorial Institute for Medical Research	TC	2022 – 2025

Source: Formulated by the evaluator based on the Preparatory Survey Report p9-p11, JICA web page “Visualising ODA,” etc.

Note: TC: Technical Cooperation, GA: Grant Aid Cooperation, LT: Long-term Training

This cooperative project relates to highly advanced facilities and equipment and is positioned as an extension of the above assistance. In addition, this project was possible and

⁴³ Interview with the NMIMR

⁴⁴ Speech by Prime Minister Suga at the 75th United Nations General Assembly (September 25, 2020). https://www.israel.emb-japan.go.jp/itpr_en/souri_20200925.html

effective as a result of the combination of various projects and long-term, continuous capacity building, rather than owing to a specific project.

Specifically, the factors which contributed to the capacity enhancement of the researchers included the combination of both hard aspects such as facility construction and soft aspects such as technical cooperation. Among the soft aspects, multifaceted capacity development was intended through various schemes such as technical cooperation projects, SATREPS, various types of training in Japan (omitted in Table 15), long-term degree programs. Furthermore, the succession and continuation of this support led to sustaining the mutual understanding and trusting relationship between the NMIMR and the JICA office.⁴⁵

Japanese who visit the NMIMR will be deeply impressed by the staff's sincere attitude toward work, their politeness, and consideration for others. The NMIMR has many participants in training in Japan, and some people point out the impact of this.⁴⁶ While interacting with Japanese organizations and Japanese people in general, including Japanese researchers, university and JICA staff, and others, many researchers have acquired a sincere work ethic. In addition to JICA's training in Japan, collaboration with researchers from Japan and overseas countries other than JICA has also provided a positive impact on values and work ethic. These have led to the NMIMR's unique organizational culture and an improvement in the quality of research and training, together with knowledge and equipment.

JICA's long-term support for the NMIMR through a variety of schemes is a good practice. The long-term, multifaceted support for an organization which plays an important role in partner countries and has excellent potential will bring significant positive effects not only to the partner country but also to the region.

3.4 Sustainability (Rating: ③)

3.4.1 Policy and System

Ghana's *National Medium-Term Development Policy Framework (2022-2025)* and *Ghana Roadmap for Achieving Universal Health Coverage 2020-2030* both aim to reduce infectious diseases. Significant changes are not likely after the ex-post evaluation. In addition, the policy goals of *HSM TDP 2022-2025* include "universal access to better and more efficiently managed quality health services" and "improved access to rapid emergency services in clinical and public health". Furthermore, in relation to the latter, the establishment and strengthening of the "Ghana Center for Disease Control" (Ghana CDC)⁴⁷ are advocated. Therefore, there are no issues regarding future policy and system prospects.

⁴⁵ Interview with the NMIMR

⁴⁶ Interview with the NMIMR

⁴⁷ Regarding Ghana CDC, please refer to p18.

3.4.2 Institutional/Organizational Aspect

At the time of planning, the NMIMR was a research institute belonging to the University of Ghana’s “Health College”, the largest and most excellent public university in Ghana, and had nine research departments. It was a semi-autonomous organization, which adopted a self-supporting accounting system except for staff salary. The NMIMR had four main roles: 1) research and surveys, 2) function of the disease control centre, 3) special testing and diagnosis, and 4) fostering researchers.⁴⁸ Even at the time of the ex-post evaluation, the position, function, and purpose of the NMIMR have not changed.⁴⁹

Table 16 shows the changes in the number of employees in the three departments targeted by this project.

Table 16 Personnel in the Three Target Departments

(Unit: persons)

	2015 (Actual)	2018	2019	2020	2021	2022 (not yet completed)	2023 (Plan)
Department Head, Professor	5	5	5	5	5	5	10
Researcher	16	14	18	22	23	23	28
Assistant Researcher, Engineer	66	75	82	158	181	178	158
Others (Office Clerk, etc.)	9	8	8	8	8	9	8
Total	96	102	113	193	217	215	204

Source: Preparatory Survey Report p132, Questionnaire to the NMIMR

Note: The number of the maintenance staff is not included.

At the time of the ex-post evaluation, the total number of people in the three target departments was more than double that before the project was implemented, and the increase in the number of researchers, research assistants, and technicians is remarkable. The number of research assistants and technicians increased significantly in 2021 and decreased in 2022. This is due to a temporary increase in personnel to deal with the enormous amount of PCR testing due to the COVID-19 pandemic. The government of Ghana has approved an unusually large increase in the number of NMIMR staff members by 45 in FY2022. It is said that this is because the government recognized the NMIMR’s contribution to the fight against COVID-19. Of these, 41 staff were already hired and started working by the end of December 2022. In addition, five engineers (mechanical, electronic, and biomedical fields) were assigned as facility maintenance personnel by the end of December 2022.

⁴⁸ Preparatory Survey Report p13-p17

⁴⁹ Questionnaire to NMIMR

Table 17 shows the facility maintenance personnel responsible for the maintenance and management of the NMIMR facilities and equipment as a whole.

Table 17 Number of Maintenance Staff in the NMIMR

(Unit: person)

	2015	2021	2022
Staff who received Bio-safety Training	4	8	8
Those who received the training in the Soft Component of this project	0	8	8
Others	4	0	0
Staff who have not received Bio-safety Training	7	0	5
Total	11	8	13

Source: Preparatory Survey Report (Attachment-5), Questionnaire to NMIMR

The number of maintenance personnel was 11 at the time of planning, and it had been already decided that three of them would retire in two years, and it was pointed out that it was essential to supplement personnel.⁵⁰ At the time of the second field survey of this ex-post evaluation (September 2022), the NMIMR had eight maintenance personnel. The NMIMR had been negotiating with the government to secure personnel to replace the three retired workers, but because it generally takes time to secure replacements in Ghana, no replacements had been made at the time of the ex-post evaluation. Of the eight maintenance staff, two are in charge of the ARC, including the operation and maintenance of the BSL-3 laboratory. They sometimes work on weekends due to a manpower shortage. However, as the engineers mentioned above are hired, the problem is expected to be resolved.

As mentioned in 3.4.1, *HSM TDP 2022-2025* calls for the establishment and strengthening of the Ghana CDC. The Ghana CDC is an organization that serves as a central coordination point for all relevant agencies in the event of a public health emergency. The preparation of establishment has been advanced by the initiative of the World Bank, after its necessity was recognized during the outbreak of Ebola haemorrhagic fever. After the establishment of the Ghana CDC, the NMIMR is expected to play a role as a member of the CDC Advisory Committee in strengthening the capacity of medical research and related laboratories.⁵¹ Thus, it is likely that NMIMR plays a further important role in the event of public health emergency after its establishment. Therefore, sustainability from the aspects of organization and system is high.

3.4.3 Technical Aspect

At the time of planning, NMIMR was considered the highest-ranking research institute in Ghana with a BSL-3 laboratory,⁵² and it was officially accredited by the World Health

⁵⁰ Preparatory Survey Report p125

⁵¹ Interview with World Bank

⁵² Preparatory Survey Report p24

Organization (WHO) as an infectious disease surveillance agency.⁵³ Even at the time of the ex-post evaluation, the capacities of NMIMR researchers were highly evaluated. The NMIMR has researchers with diverse specialties, is internationally recognized, and serves as a member of many committees in both Ghana and abroad. Their papers have been published in high-impact journals and have been awarded highly competitive research grants. However, this does not apply to technicians, and training is required.⁵⁴

Because almost all of the facilities and equipment for research experiments that were provided are functioning, no problems have been observed with regard to overall maintenance capacity.⁵⁵ According to the NMIMR, procurement of spare parts for the equipment has been made in a timely manner, and it has been assessed that there are no problems.

Reliable retention of high-risk pathogens by HEPA filters is mandatory in BSL-3 laboratories. On the other hand, in the existing BSL-3 laboratory, the HEPA filter, which should be replaced every two years, had not been replaced for ten years.⁵⁶ In this project, the soft component was used to improve the knowledge and skills of the maintenance staff regarding the operation and maintenance of the BSL-3 laboratory, and all of the eight trainees remained working even at the time of the ex-post evaluation. Thus, it has been determined that the knowledge and skills are maintained.

The HEPA filter in the BSL-3 laboratory has not yet been replaced even at the time of the ex-post evaluation. As the timing of the HEPA filter replacement depends on the frequency of use, it is scheduled to be replaced as soon as the red signal lights up, and there is no problem with that point itself. However, at the time of the ex-post evaluation, none of the maintenance personnel who received training in the soft component had official qualifications to replace HEPA filters. Because it would be illegal for unqualified personnel to replace them, the NMIMR cannot replace HEPA filters.⁵⁷ For this reason, it is necessary to have maintenance personnel acquire this qualification within two to three years when HEPA filter replacement is expected to become necessary. The NMIMR is aware of this problem and intends to address it.⁵⁸

As a lesson learned from similar projects in the past, it was indicated at the planning stage that this project should encourage the proactive participation of Ghanaian stakeholders in the selection of equipment, as well as select materials and equipment that match the purpose of constructing the ARC, the technical level of users, and the environment for procurement of spare parts.⁵⁹ During the planning of this project, the NMIMR, JICA, and the implementation consultant repeatedly discussed not only spare parts but also facilities and equipment as a whole.

⁵³ The Ex-ante Evaluation Sheet p2

⁵⁴ Questionnaire to and interview with NMIMR

⁵⁵ Questionnaire to and interview with NMIMR, site observation

⁵⁶ Preparatory Survey Report p125

⁵⁷ Interview with NMIMR. The name of the qualification is Biosafety Cabinet Certification and Technology Certificate. The certificate is issued by Eagleson Institute.

⁵⁸ Interview with NMIMR

⁵⁹ The Ex-ante Evaluation Sheet p3

It is believed that this led to the clarification and sharing of needs, which in turn contributed to the good maintenance and management of the facilities. In light of the above, slight issues have been observed regarding the technical aspect.

3.4.4 Financial Aspect

The NMIMR has its own revenues (project indirect costs, testing revenues, experimental animal sales, interest, etc.) and research project budgets funded by other donors and research institutes. It was expected to generate more revenue from more advanced research and special diagnostics for infectious diseases after the ARC starts its operation.⁶⁰ Table 18 shows the income and expenditure status of the NMIMR before and after this project. At the time of the ex-post evaluation, income and expenditure increased to 135% and 139%, respectively, compared to before the start of the project. Thus, there are no financial issues.

Table 18 Income and Expenditure Status of NMIMR

(Unit: Thousand Ghana Cedi)

Item	2015	2016	2017	2018	2019	2020	2021
Income							
Governemtn Budget (staff salary)	7,639	7,704	9,641	10,706	11,088	11,213	15,012
Internal Income	3,877	3,038	5,324	4,453	5,575	5,452	7,967
Grant Income	22,127	20,502	22,962	21,484	19,912	32,037	54,697
Total Income (A)	33,643	31,245	37,927	36,643	36,576	48,702	77,676
<i>Yen equivalent (Thousand JPY)</i>	<i>1,076,578</i>	<i>867,905</i>	<i>953,901</i>	<i>832,799</i>	<i>650,697</i>	<i>866,436</i>	<i>1,463,655</i>
Expenditure							
Staff salary	7,639	7,704	9,641	10,706	11,088	11,213	15,012
Management Expenses	867	964	1,094	1,215	1,255	3,411	1,964
Utilities	218	159	226	273	276	429	365
Building Maintenance	200	344	335	276	248	657	431
Facilities, A/C, Vehicle Maintenance	317	254	253	214	326	177	334
Equipment Maintenance	682	737	319	381	720	422	455
Facility Investment	495	21	1,149	42	42	127	296
Project Expenditure	19,914	19,477	20,666	20,410	18,319	27,232	53,056
Total Expenditure (B)	30,332	29,661	33,683	33,517	32,274	43,667	71,913
<i>Yen Equivalent (Thousand JPY)</i>	<i>970,612</i>	<i>823,920</i>	<i>847,155</i>	<i>761,739</i>	<i>622,810</i>	<i>776,847</i>	<i>1,355,066</i>
Balance							
Balance (A-B)	3,311	1,583	4,244	3,127	4,302	5,036	5,763
<i>Yen Equivalent (Thousand JPY)</i>	<i>105,967</i>	<i>43,985</i>	<i>106,746</i>	<i>71,060</i>	<i>83,012</i>	<i>89,589</i>	<i>108,588</i>

Source: NMIMR

In addition, the ARC's maintenance budget has increased both in terms of budget and expenditure since the project completion year, and it has remained in the black (Table 19). As mentioned above, the government of Ghana has approved a significant increase in the number of NMIMR staff in fiscal year 2022. And it has also approved a budget of 28 million Ghana

⁶⁰ Preparatory Survey Report p143

Cedis to support the ARC. This will be used for facility maintenance and equipment repair/renewal.⁶¹

Table 19 ARC Maintenance Budget

(Unit: Ghana Cedi)

	2019	2020	2021
Budget	1,061,000	1,053,790	1,100,000
Expenditure	742,000	899,000	1,033,758
Balance	319,000	154,790	66,242

Source: Questionnaire to NMIMR

Table 20 shows the commissioned research expenses out of the NMIMR's income. Research commissioned by international donors to the NMIMR generally continues to increase. As for research from the government of Ghana, the research contract fee decreased in FY2020 for the same reason.⁶² However, at the time of the ex-post evaluation, the emergency response to the COVID-19 disaster had already passed its peak, and it is expected that the emphasis will be placed on research as before.⁶³

Table 20 Commissioned Research Expenses of the NMIMR

(Unit: Thousand Ghana Cedi)

	2016	2017	2018	2019	2020	2021
International donors	20,502	22,962	21,484	19,912	32,037	54,697
Government fund	0	0	0	2,258	18,248	0
Others	0	0	0	0	0	0

Source: Questionnaire to and interview with NMIMR

3.4.5 Environmental and Social Aspect

As mentioned above, no negative impacts on the environment have been observed, and the possibility is considered to be low in the future.

3.4.6 Preventative Measures to Risks

Risks assumed at the time of planning included a lack of technical capacity for operation and maintenance, a lack of financial capacity for operation and maintenance, a shortage of bidders, and an insufficient capacity of contractors (including local subcontractors).⁶⁴ However, no

⁶¹ Interview with NMIMR

⁶² Questionnaire to NMIMR

⁶³ Interview to NMIMR

⁶⁴ Project Monitoring Report (4 potential risks and mitigation measures), questionnaire to and interview with NMIMR

problems were observed during implementation and ex-post evaluation. Also, as mentioned earlier, there have been no accidents in the BSL-3 laboratory.⁶⁵

3.4.7 Status of Operation and Maintenance

At the time of the ex-post evaluation, more than 96% of the equipment is functioning and being utilized. The only non-functioning one is the PCR machine, which has failed due to power outages and voltage fluctuations. The broken switchboard needs to be replaced, and the NMIMR has been conversing with a Japanese supplier. The large autoclave broke down in July 2020 but was repaired by the local agent in May 2021. During that time, another piece of the same equipment was utilized, so there were no major problems⁶⁶. In addition, the operation and maintenance status of the BSL-3 laboratory was good, and no problems were observed. However, since there is no storage space, cardboard boxes are piled up here and there in the corridors and on the landings of the stairs, and there is concern that they will hinder use in an emergency.

From the perspective of improving sustainability, the implementing consultant considered the ease of maintenance during the planning stage, tried to use construction materials with specifications that could be procured locally, and exercised the ingenuity in reducing air-conditioning load to lower the maintenance cost. In addition, at that time, the implementing consultant involved those concerned at the NMIMR and had repeated discussions.

In light of the above, slight issues have been observed in the technical aspects. However, there are good prospects for improvement/resolution. Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

This project was intended to improve the research, testing and educational functions of the Noguchi Memorial Institute for Medical Research (hereinafter referred to as the NMIMR) by constructing the Advanced Research Center for Infectious Diseases (ARC), thereby contributing to strengthening the capacity to respond to infectious diseases in Ghana and West Africa as a whole. This project was in line with Ghana's development policy and development needs, as well as Japan's development cooperation policy at the time of planning, as it aimed to contribute to capacity strengthening of Ghana and West Africa to respond to infectious diseases, through improving the functions of the NMIMR. Synergies between this project, a Science and Technology Research Partnership for Sustainable Development (SATREPS) program, and the Third-country Training were anticipated at the time of planning, and synergies were observed

⁶⁵ Questionnaire to and interview with NMIMR

⁶⁶ Site observation and interview with the maintenance division of NMIMR

when these projects were implemented as planned. Although there has been no collaboration or coordination at the time of planning for projects other than JICA, training by other donors and research with Japanese universities were implemented at ARC due to coordination at the time of implementation, and mutual linkage was recognized. Therefore, its relevance and coherence are high. The outputs of this project were mostly achieved. Although the project period exceeded the plan, the project cost on the Japanese side was within the plan. Therefore, efficiency of the project is high. Regarding the project objective, i.e., improvement of the NMIMR's function, the indicators for both quantitative and qualitative effects have been achieved, and the expected impact has been realized. Therefore, effectiveness and impacts of the project are high. Slight issues have been observed in the technical aspect concerning the operation and maintenance of the project. However, there are good prospects for improvement/resolution. Therefore, sustainability of the project effects is high. In light of the above, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Acquisition of maintenance personnel's qualification required for HEPA filter replacement

Regarding the maintenance and management of the BSL-3 laboratories, it is hoped that NMIMR will take responsibility for ensuring that maintenance personnel acquire the necessary qualifications for HEPA filter replacement.

(2) Securing storage space

At the time of appraisal, at the request of the NMIMR, storage space was omitted in order to set up two BSL-3 laboratories. It is desired that NMIMR will secure storage space with the assistance of the Ghanaian government or with its own budget.

(3) Prompt repair of PCR machine and securing UPS with AVR function

It is desired that NMIMR will promptly repair the PCR machine and secure Uninterrupted Power Supply system with Automatic Voltage Regulator function, if possible.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Maintenance conscious project plan and involvement of the executing agency

From the perspective of enhancing sustainability, the implementing consultant considered the ease of maintenance, tried to use construction materials with specifications that could be procured locally, and exercised the ingenuity in reducing air-conditioning load to make the operation and maintenance cost lower. In addition, at that time, people involved in the NMIMR,

the executing agency, were involved in repeated discussions. This was beneficial for good maintenance of the facility.

It is essential to use materials and equipment that can be procured locally and make the specifications easy to repair, involve local stakeholders during planning, hold repeated discussions, and make a plan that is easy for the executing agency to maintain and manage once it is put into service.

5. Non-Score Criteria

5.1. Performance

5.1.1 Objective Perspective

From the perspective of improving sustainability, the implementing consultant considered the ease of maintenance and tried to use locally procured construction materials. Various measures were taken to reduce the air-conditioning load, specifically by arranging equipment balconies around the outer wall of the building for the outdoor units of air conditioners and covering them with walls (partially louvered for daylighting and air-conditioning exhaust). The design was intended to avoid direct exposure to the strong sunlight peculiar to Africa on the outer wall of the rooms and to reduce the air-conditioning load considerably. In addition, natural ventilation in the attic was ensured to reduce solar radiation from the roof surface. In addition, there is a vast amount of expensive research equipment, and rain and water leaks are fatal, so piping that penetrates the floor and ceiling in the laboratory was avoided as much as possible, and piping was made through this equipment balcony. This makes it easier to inspect and troubleshoot. Except for some special laboratories, air conditioners were standard wall-mounted units (same as for general housing) to facilitate troubleshooting.⁶⁷

In addition, the implementing consultant appropriately fulfilled the required roles in the preparation of tender documents, implementation of construction tenders, and construction management, and the JICA local office was very cooperative with the executing agency from the planning to the completion stage⁶⁸.

5.2. Additionality

None.

⁶⁷ Implementing consultant

⁶⁸ Questionnaire to NMIMR

Republic of Ghana

FY2021 Ex-Post Evaluation Report of Grant Aid Project

“The Project of Reinforcement of Power Supply to Accra Central”

External Evaluator: Katsuyoshi Takakura

Foundation for Advanced Studies on International Development

0. Summary

The project was implemented with the objective, which is to supply stable electric power and reduce electric power transmission and distribution loss at capital city Accra, Ghana by constructing a core transmission and substation facility, thereby contributing to the stabilisation of residents’ lives and industrial development.

The project is consistent with Ghana’s development policy, development needs, and Japanese aid policy at the time of planning. Synergies with internal and external JICA projects have been identified based on prior coordination and planning. Hence, relevance and consistency are high. Although the project period was slightly longer than the plan, the project costs were within the planned amount, so efficiency is high. Regarding the quantitative effects of effectiveness, the effects of achieving capacity of transformers within Accra, reducing the annual planned outage hours, reducing the annual number of outages, increasing the transmission and distribution electricity supply, and reducing the distribution loss ratio were identified. However, no effects were observed for annual unplanned outage hours, transmission loss ratio, and transmission line overloading. Qualitative effects were only observed to be achieved in some facilities with regard to the stability of electricity supply, reduction in the number of power outages, and reduction in the duration of power outages. In addition, no negative impacts were observed as a result of the implementation of the project, but the expected impact set at the time of planning, namely ‘stabilisation of residents’ livelihoods and industrial development’, was limited. Therefore, effectiveness and impacts of the project are moderately low. Although there are some minor technical problems in the operation and maintenance of the project, there are no problems in other areas such as the structure and financial aspects. Therefore, sustainability of the project effects is high. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location (Source: Evaluator)



Accra Central BSP (Source: Evaluator)

1.1 Background

Ghana continued to grow steadily until COVID-19 started to have an influence, driven by private investment and infrastructure development due to the start of commercial oil production. In Ghana, the demand for electricity was increasing along with the economic growth. It is prognosticated that electricity demand will reach 4,161 MW in 2026. However, there was already a nationwide power shortage, especially in the Accra central area, and it was causing serious obstacles to economic activities. In addition, the development of power grids to meet the rapidly increasing demand for electricity had been delayed, and system losses for electricity transmission and distribution in Accra in 2013 were recorded at 30 MW.

The Government of Ghana formulated *VISION 2020* as a long-term comprehensive development guideline in 1995 and has positioned power sector development as one of the priorities. Furthermore, nationwide electrification was being pursued with the ultimate goal of supplying electricity to all citizens through the formulation of the *National Electrification Scheme (NES)* for 2020. Because of the effects of these political measures, the electrification rate in Ghana was 72% at the end of 2011, which was higher than the average of Sub-Saharan African countries (30.5%).

Therefore, it was expected that the implementation of this project would contribute to the increase in electric power supply and the improvement of the electric system loss rate.

1.2 Project Outline

The objective of this project is to supply stable electric power and reduce electric power transmission and distribution loss at capital city Accra, Ghana by constructing a core transmission and substation facility, thereby contributing to the stabilisation of residents' lives and industrial development.

<Grant Aid Project>

Grant Limit/Actual Grant Amount	4,357 million yen/4,197 million yen
Exchange of Notes Date /Grant Agreement Date	December 2015/December 2015
Executing Agency ¹	Ghana Grid Company Limited (GRIDCo)
Project Completion	December 2018
Target Area	Accra, Greater Accra Region
Main Consultant(s)	Joint Venture of Yachiyo Engineering Co., Ltd.

¹ Cooperating agency is Electricity Company of Ghana (ECG).

	and West Japan Engineering Consultants Inc.
Main Contractor(s)	Joint Venture of Mitsubishi Corporation, Hitachi Plant Construction, Ltd., and Yurtec Corporation
Basic Design/Preparatory Survey	December 2013-August 2015
Related Projects	Technical Cooperation Project “The Project on Electrical Engineers Training for African Countries” (2010-2016)

2. Outline of the Evaluation Study

2.1 External Evaluator

Katsuyoshi Takakura, Foundation for Advanced Studies on International Development

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: December 2021-March 2023

Duration of the Field Study: 23 May 2022-4 June 2022 and 11 September 2022-17 September 2022

3. Results of the Evaluation (Overall Rating: B²)

3.1 Relevance/Coherence (Rating: ③³)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Ghana

At the time of planning, the Government of Ghana had formulated *Ghana Vision 2020* in 1995 as a long-term comprehensive development guideline, which identified power sector development as one of its priorities. Under *National Electrification Plan*, national electrification was being planned with the ultimate goal of supplying electricity to all citizens, and reducing transmission and distribution losses was identified as one of the key issues. In addition, *National Energy Strategic Plan 2006-2020* identified (i) stimulating economic activity and promoting economic growth through a stable energy supply, (ii) integrating, upgrading, and expanding existing energy facilities, and (iii) strengthening the organisation, human resources, and research and development capacity in the energy sector as the main planning objectives. The plan included the reinforcement and expansion of the electricity transmission and distribution network as one of its strategies.

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory.

³ ④: Very High, ③: High, ②: Moderately Low, ①: Low.

At the time of the ex-post evaluation, the importance of developing an electricity infrastructure, including generation, transmission, and distribution, is mentioned in *Ghana Long-Term National Development Plan 2018-2057* in order to build secure communities. *Medium-Term National Development Plan 2022-2025* also mentions the importance of developing an electricity infrastructure to provide electricity to the total population.

As the above demonstrated, this project is consistent with the development policy.

3.1.1.2 Consistency with the Development Needs of Ghana

At the time of planning, Ghana was growing steadily, driven by private investment and infrastructure development against the backdrop of the start of commercial oil production and other factors. Also, demand for electricity was increasing with economic growth. Nationwide electricity shortages, particularly in the Metropolitan areas and large cities, were becoming a problem and seriously hampering economic activities.

In the Accra Metropolitan Region, electricity demand reached 923.7 MW in FY2021⁴, compared to 776 MW in 2018. Even at the time of the ex-post evaluation, electricity demand was high. The Accra Central Bulk Supply Point (BSP) was the main substation supplying electricity to Accra's central business district. Without this BSP, the supply of electricity to Accra's central business district would have been challenging⁵.

Therefore, this project meets the development needs.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan's ODA Policy

At the time of planning, Japan's basic policy in aiding Ghana was to promote strong economic growth that would benefit the population at large. Economic infrastructure (electricity and transport) was identified as an area of focus⁶. Ghana's policy for addressing its development challenges was to increase power generation capacity, improve the electrification rate, electrify rural areas, and rehabilitate and enhance transmission and distribution facilities in order to promote the appropriate distribution of energy necessary for local communities and economic growth⁷.

3.1.2.2 Internal Coherence

Under the Project on Electrical Engineers Training for African Countries (2010-2016), a technical cooperation project implemented by JICA at the same time as this project, capacity strengthening training was provided for ECG technicians and engineers with the aim of improving

⁴ Questionnaire responses to ECG.

⁵ Questionnaire responses to GRIDCo and ECG.

⁶ Country assistance policy for Ghana 2012.

⁷ Rolling plan for Ghana 2014.

their capacity to operate and maintain electricity distribution facilities. The project contributed to the development of human resources and capacity strengthening of ECGs to construct, operate, and maintain the substation facilities developed under this project⁸. Because five ECG technicians and 14 ECG engineers who participated in the training were involved in the project, there was a synergistic effect in that the technicians and engineers who had improved their ability to operate and maintain power distribution facilities by attending the training contributed to the construction, operation, and maintenance of the substation facilities, which are the outputs of the project⁹. In the detailed planning survey report for the technical cooperation project, it was written as ‘New grant aid is being considered for power distribution facilities and maintenance based on the above master plan for power distribution, and synergies are expected to be generated through collaboration with the project’. Hence, synergies with this project have been consciously promoted from the outset.

3.1.2.3 External Coherence

The Pokuase BSP¹⁰ Project (2016-2022), implemented by Millennium Challenge Corporation (MCC), increased the capacity of the sub-transmission network in northern Accra and improved transmission line voltage levels¹¹. The project’s objective is to reduce technical transmission and distribution losses, thereby promoting economic growth and reducing poverty. The Pokuase BSP was developed to provide stable electricity supply by reducing transmission losses and increasing the capacity of the distribution network within Accra. The project has helped the Accra Central BSP achieve its goals of stable electricity supply and in reducing technical transmission and distribution losses¹². From the above, it can be said that there was a synergistic effect with the objective of this project to reduce technical transmission and distribution losses in Accra. According to JICA’s Financial Cooperation Operations Department, this project was being coordinated with related projects, such as donor support, from the time of the preparatory survey. At the ground-breaking ceremony, the positioning of this project, which is to meet future electricity demand in the Accra Metropolitan Region in collaboration with the Pokuase BSP, and the division of roles between the two BSPs were also explained, and this project was implemented in collaboration with the Pokuase BSP Project.

As mentioned above, in terms of relevance, the project is consistent with Ghana’s development policy and development needs. With regard to coherence, the project is consistent with Japan’s aid policy at the time of planning. Regarding cooperation with projects within JICA, synergies were confirmed because the technicians and engineers who participated in the technical

⁸ Interview with the JICA Ghana Office.

⁹ Questionnaire responses of ECG training centres.

¹⁰ The Pokuase BSP was built to improve the electricity supply in the northern part of the Accra Metropolitan Region, whereas the Accra Central BSP was built to improve the electricity supply in the central area of Accra city.

¹¹ Interviews and questionnaire responses to ECG.

¹² Interviews to MCC, GRIDCo, and ECG.

cooperation project EETA, which aims to strengthen the capacity of ECG technicians and engineers, are engaged in the construction, operation, and maintenance of substation facilities, which is the output of this project. With regard to collaboration with projects outside JICA, synergies were identified with the MCC's 'Pokuase BSP Project' in each other's project objectives. It was confirmed that there were prior coordination and planning in both internal and external coherence.

Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

The planned and actual outputs of this project are as shown in Table 1. Relating to the outputs, the Japanese side achieved almost as much as planned, although there were some changes in the specifications of facilities and equipment and the transmission line route. For facilities, there were minor changes in the control building, main transformer platform types, and GIS platform types. For equipment, there were changes to the transmission line route and pylon specifications. For the Ghanaian side, the securing of land and the clearing of the site and removal of obstacles were not achieved as planned.

Table 1 Planned outputs and actual outputs

Planned outputs	Actual outputs
Civil engineering works, procurement equipment, etc.	
Facilities	
-Control building -Main transformer platform -GIS platform (for 170 kV Gas insulated switchgear) -Platforms for 161 kV transmission pylons	-Control building -Main transformer platform (<u>Change from solid platform to pile platform</u>) -GIS platform (<u>Change from solid platform to pile platform</u>) -Platforms for 161 kV transmission pylons
Equipment	
<u>Accra Central BSP</u> -161/34.5 kV Transformer -170 kV Gas insulated switchgear -33 kV Gas insulated switchgear -SCADA interface panel -Control and protection panel	As planned.
<u>161 kV Power Cable</u> -161 kV Overhead cable -161 kV Underground cable -Pylon	As planned. However, there were <u>changes regarding the routes of 161 kV overhead cables and 161 kV underground cables and the specifications of the towers, etc.</u>
<u>Other Equipment</u> -Maintenance tools for procured equipment. -Spare parts for procured equipment.	In addition to equipment at the time of planning, <u>'emergency spare parts for procured equipment'</u> were added.
Consulting services	

Detailed design, bidding support, and construction supervision.	As planned.
Ghanaian side	
<ul style="list-style-type: none"> -Securing land for the project site (new BSP and 161 kV transmission line route). -Clearing the project site and removing obstacles. -Securing land for temporary storage of materials and equipment and fences/gates. -Facility works: Construction of gates and fences, Access road works to the project site, Hypothetical reconnection works at the Graphic Road substation during the removal of the existing 33 kV switchboard, Connection works at the junction of the 161 kV transmission line, and Removal works of 33 kV sub-transmission lines. 	<ul style="list-style-type: none"> -<u>The transmission line route and pylon specifications were changed</u> due to the inability to secure land around pylon N18. -The construction period was extended by one month due to the discovery of <u>buried cables</u> at the project site. -‘Procurement of equipment to connect the SCADA connection panel to the existing SCADA communication network and connection work’ was added.

(Source: documents provided by JICA and preparatory survey report)

As shown in Table 2, there were specification changes, changes due to non-removal of obstructions, and changes due to the occurrence of claims, from Outline Design (O/D) and Detailed Design (D/D) with regard to the project’s outputs.

Change 1) was a change in the specification of the pylon and related equipment due to the effect of the Brazilian state-supported junction viaduct construction project. At the time of this project’s planning, GRIDCo was not aware of that project because it had not started. At the start of this project’s construction, GRIDCo recognised the need to change the height of the pylon and the specifications of the platform due to the effect of the Brazilian project. So, GRIDCo decided to change them. The height of the pylons and the specifications of the platforms had to be changed in order for the transmission line to be able to pass over the junction viaduct, which was constructed by a Brazilian project. Technically, it was impossible to avoid.

Change 2) was a reasonable change because it was a platform change to guarantee the performance of the equipment. Change 3) was a change of the transmission line route and pylon specifications due to the lack of available construction space. It was also an inevitable change.

Pertaining to change 4), it was stated that the removal of the existing 33 kV distribution line was not completed before the start date of the 161 kV transmission line works (September 2017) due to a lack of coordination between GRIDCo and ECG. However, in reality, the two companies had adequate coordination and communication. The cause was the delay in obtaining permission from the Accra Municipal Authority for the cable route¹³.

Change 5) was an extension of the construction period because of incomplete removal of existing structures, etc. Because a large number of buried cables were discovered on the ECG-owned project site land, it took a long time to remove the cables. It was impossible for GRIDCo,

¹³ Questionnaires and interviews to ECG.

which was carrying out the removal work, to check the underground conditions at the time of planning, and it was difficult to find the presence of the cables in advance. The problem could not be avoided technically. Also, GRIDCo had checked with ECG at the time of planning.

Change 6) was an extension of the project’s implementation period due to a claim from the landowner before the start of construction. However, the claim could not have been foreseen in advance, so the change and the extension of the period were inevitable.

As stated above, it can be concluded that the changes in 1) to 6) were unavoidable. Furthermore, the quality of the BSP and transmission and distribution line facilities did not deteriorate as a result of the extended project period. The facilities were constructed as originally planned. No other changes in this project were identified.

Table 2 Changes from O/D and D/D¹⁴

Specification changes	
1)	Because of the Brazilian-supported intersection grade crossing (around the ECG’s project office), the specifications (dimensions and quantities) of the pylons and platforms (N9 and N10) for the 161 kV transmission line works were changed. (April 2016)
2)	Because the bidder’s internal policy required that the building’s immovable settlement be as ‘0 mm’ as possible to guarantee the performance of the equipment, the platforms were changed from solid to piled platforms. (April 2017)
3)	The 161 kV transmission line route between pylon N16 and the Accra Central BSP and the pylon specifications, etc., were changed due to the lack of space for construction work regarding pylon N18 and the 161 kV underground transmission cable, which is one of GRIDCo’s responsibilities. Regarding pylon N18, the reason for the change was that it was not possible to secure a construction space due to the lack of agreement on the acquisition of the adjacent car factory. Concerning the construction of the 161 kV underground transmission cable, the reason was that it was difficult to obtain permits and approvals for the relocation of water pipes and other public buried objects, and construction space could not be secured. (May 2017)
Changes due to unremoved obstacles	
4)	Because of the removal of the existing 33 kV distribution line, one of GRIDCo’s responsibilities, was not completed before the start date of the 161 kV transmission line construction (September 2017), and the construction location of the 161 kV transmission line from pylon N1 to N12 was changed. After that it was confirmed during the warranty inspection that the removal of the existing 33 kV distribution line had been carried out. (October 2017)
5)	Because of the removal of existing structures and other work at the Accra Central BSP, which GRIDCo was supposed to carry out, was not completed by the end of August 2016, the contract performance deadline was extended from 31 July 2018 to 31 October 2018. The additional costs of the contractor for the extended construction period were paid from the grant aid. When GRIDCo was in the process of removing the cables, a large number of buried cables were discovered on the project site. Hence, the removal work became more than expected. Because the project site was an existing BSP owned by ECG, GRIDCo could not find the cable. The removal of the cables took approximately 4.5 months. They were removed by mid-January 2017, when construction work started. (December 2018)
Changes due to the occurrence of a claim	
6)	The 161kV underground cable route to be laid between pylon N19 and the Accra BSP required time for residents’ safety and coordination with landowners, so the construction period was extended by one month. Additional costs for contractors due to the extended construction period were paid from the grant aid. On the day of starting construction work, there were urgent complaints to GRIDCo

¹⁴ 1) was a change from O/D; 2)-6) were changes from D/D.

from residents in the vicinity to apply safety measures to the construction work. The landowner also requested consultations before the start of construction. Hence, the start of construction was delayed by one month. (December 2018)

(Source: documents provided by JICA and interviews to implementation consultant)

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual amount was 4,197 million yen (96% of the plan), whereas the E/N limit amount was 4,357 million yen at the time of the plan. Project costs were within the plan. A breakdown of planned and actual amounts is shown in Table 3.

Table 3 Planned and actual project cost

(Unit: 1,000 yen)

	Planned amount	Actual amount			
		Domestic currency	Foreign currency (Japanese procurement)	Foreign currency (Third country procurement)	Total
Construction	400,000	412,679	254,099	32,694	699,472
Equipment	3,797,000	0	2,983,337	361,472	3,344,809
Design and Administration	153,000	0	153,000	0	153,000
Total	4,350,000	412,679	3,390,436	394,166	4,197,281

(Source: documents provided by JICA and preparatory survey report)

As noted in ‘3.2.1 Project Outputs’, there was a change due to unremoved obstacles and a change due to claims. These changes increased the costs.

Specifically, there was an increase in costs for the extension of the construction period (an increase of 7,772,000 yen from the contractor’s contract amount) because of incomplete removal of existing structures (Table 2 Change 5), and there was an increase in costs (an increase of 7,144,000 yen from the contractor’s contract amount) for the extension of the construction period due to complaints from residents living near the construction site (Table 2 Change 6). However, although the contract amount of the contractor was increased, the bidding price was lower than planned. As a result, the overall project cost on the Japanese side was lower than planned.

At the time of planning, the project cost of the project on the Ghanaian side was assumed to be 200 million yen, but at the time of the ex-post evaluation, the project costs were unknown because

most data on project costs did not exist¹⁵.

3.2.2.2 Project Period

At the time of planning, the project period was planned to be 31 months (Aug 2015-Feb 2018), but the actual result was 37 months (Dec 2015-Dec 2018): 119% of the plan. It slightly exceeded the plan. Details are given in Table 4.

Table 4 Project period plans and achievements

	Planned	Actual
Grant agreement signing	August 2015	December 2015
Design and bidding period	August 2015-January 2016 (5 months)	December 2015-May 2016 (6 months)
Construction period	January 2016-February 2018 (25.5 months)	September 2016-December 2018 (28 months)
Project completion	February 2018	December 2018
Total project period	August 2015-February 2018 (31 months)	December 2015-December 2018 (37 months)

(Source: documents provided by JICA and preparatory survey report)

The project period exceeded the plan due to the extension of the construction period and the handling of complaints from residents. Specifically, the deadline for implementation was extended from 31 July 2018 to 31 October 2018 due to the extension of the construction period for the uncompletion of the removal work of existing structures, etc. (Table 2 Change 5). In addition, due to the handling of complaints from residents living near the construction site, it took three months to resolve disputes, and the construction period was delayed. The implementation deadline was therefore further extended from 31 October 2018 to 28 December 2018 (Table 2 Change 6)¹⁶.

With regard to the outputs, on the Japanese side, there were changes in the type of platform, the 161 kV overhead transmission line and transmission line route, and the specification of the pylon. However, it has mostly achieved as much as planned. For the Ghanaian side, as the changes from the O/D and D/D, there were changes to the transmission line route and pylon specifications because the securing of land and removal of obstacles could not be achieved as planned. These were unavoidable changes, and the extension of the project period was reasonable. The handling of claims from the landowner before the start of construction could not have been predicted in advance, and it was unavoidable that the project had to be extended by three months to resolve the disputes. As the above demonstrates, the project period was slightly longer than planned, but

¹⁵ Documents provided by JICA, questionnaires and interviews to GRIDCo and ECG.

¹⁶ Details are discussed below in resettlement and land acquisition.

the project costs were within the planned amount. Therefore, the project’s efficiency is high.

3.3 Effectiveness and Impacts¹⁷ (Rating: ②)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

The status of achievement of the operation indicators measuring the project’s objective ‘stable electricity supply and reduction of transmission and distribution losses’ is shown in Table 5. Operation indicator (a) Capacity of transformers in Accra (MVA) was achieved. The achievement of operation indicator (b) Transmission and distribution losses in Accra Metropolitan Area (MW) could not be measured.

Table 5 Achievement of operation indicators

Operation indicators	Baseline value (2013)	Target value ¹⁸ (2021: 3 years after completion)	Reference value (2021)	Actual value		
				2018	2020	2021
(a) Capacity of transformers in Accra (MVA)	726	1,608	1,233 ¹⁹	1,299	1,233 ²⁰	1,813
(b) Transmission and distribution losses in Accra Metropolitan Area (MW ²¹)	30	49	70	N/A	N/A	N/A

(Source: prepared by the evaluator based on Ex-ante Evaluation Sheet, preparatory survey report, and questionnaires and interviews to GRIDCo, ECG, implementation consultant, and MCC)

Relating to operational indicator (a) Capacity of transformers in Accra, this project’s increased capacity of transformers was only 375 MVA (three 125 MVA transformers) of the target value in 2021 of 1,608 MVA, as shown in Table 5. To measure the effectiveness of the project, the installation of three 125 MVA transformers in the Accra Central BSP was visually confirmed. The transformers and the main transmission lines were also confirmed to be in operation by a monitoring panel in the control building of the BSP. As a result, it can be said that this project’s target value for the capacity of transformers, namely 375 MVA (three 125 MVA transformers) has been achieved. In addition, as shown in Table 6, the capacity of transformers increased by 205 MVA from the time of planning in the Pokuase substation construction project, which was

¹⁷ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

¹⁸ The target values are the theoretical values from Table 6 added to the 2013 baseline values. The implementation consultant used theoretical values using analysis software, and the actual values were not measured (1,608 MVA=726 MVA+375 MVA+375 MVA+132 MVA).

¹⁹ Target value of 1,608 MVA minus theoretical value of 375 MVA (three 125 MVA) due to implementation of the project. Estimated value due to non-implementation of this project.

²⁰ The reason for the drop in the capacity of transformers in Accra in 2020 to 1,233 MVA is due to the temporary relocation of one transformer (66 MVA) from the Achimota BSP to the BSP in Kumasi.

²¹ In the Ex-ante Evaluation Sheet, it was MVA, but after checking, MW was correct, so which has been corrected.

supported by other donors (MCC). Thereby, the capacity of transformers in Accra in 2021 was 1,813 MVA. Therefore, the target value for indicator (a) was exceeded.

Table 6 Details of capacity of transformers in Accra (MVA)

Plan at the time of this project's planning		
Name of BSP	Capacity of transformers	Year of installation
Accra central BSP Construction (This project)	375 MVA (125 MVA×3)	2018
Pokuase BSP Construction	375 MVA (125 MVA×3)	2020
A3 BSP Reinforcement of facility	132 MVA (66 MVA×2)	2014
Actual at time of ex-post evaluation		
Accra central BSP Construction (This project)	375 MVA (125 MVA×3)	2018
Pokuase BSP Construction	580 MVA (145 MVA×4)	2021
A3 BSP Reinforcement of facility	132 MVA (66 MVA×2)	2014

(Source: prepared by the evaluator based on Ex-ante Evaluation Sheet, preparatory survey report, and questionnaires and interviews to GRIDCo, ECG, MCC, and implementation consultant)

Then, this section describes operation indicator (b) Transmission and distribution losses in Accra Metropolitan Area (MW), for which it was not possible to measure achievement. As mentioned above, in the Pokuase substation construction project, which was supported by another donor (MCC), the capacity of transformers increased by 205 MVA from the time of planning this project. Therefore, the capacity of transformers capacity in Accra in 2021 was 1,813 MVA. As a result, the actual target value of the indicator for transmission and distribution losses in the Accra Metropolitan Area was larger than the value calculated by the implementation consultant using the analysis software at the time of planning, so project effectiveness could not be measured using the target value of the indicator for transmission and distribution losses in the Accra Metropolitan Area set at the time of planning. In addition, the revised target value for the indicator needed to be calculated using specialised analysis software. Hence, it was difficult to revise the target values.

As reference information, capacity of transformers, compared with the target value (2021), is given using Table 7. Regarding transmission losses, actual measurements could not be obtained because GRIDCo replied that there are no meters on the transmission line between the Akosombo hydroelectric power station and the Aboaze thermal power station. Hence, it was not possible to measure transmission losses between these two power stations. With regard to the actual measured distribution losses, the data for 2020 was 15 MW. It achieved the target because it was lower than the originally set target of 17 MW for 2021.

Table 7 Details of transmission and distribution losses in Accra Metropolitan Area (MW)

Indicators	Baseline value	Target value	Reference value	Actual value		
	2013	2021	2021	2018	2020	2021
(b) Transmission and distribution losses in Accra Metropolitan Area (MW ²²)	30	49	70	N/A	N/A	N/A
(b1) Transmission losses in Accra Metropolitan Area (MW)	20	32	32	N/A	N/A	N/A
(b2) Distribution losses in Accra Metropolitan Area (MW)	10	17	37	13 (2017)	15	N/A

(Source: prepared by the evaluator based on Ex-ante Evaluation Sheet, preparatory survey report, and questionnaires and interviews to GRIDCo, ECG, MCC, and implementation consultant)

Therefore, reference and additional reference indicators were set and reflected in the ratings because the pre-set operation indicators are not sufficient to measure the project effects.

Reference indicators were set for annual outage hours (planned and unplanned), annual number of outages, transmission and distribution loss ratio, and transmission and distribution electricity supply. The results for the reference indicators are shown in Table 8. Regarding (c) annual outage hours, the annual planned outage hours decreased significantly by 95% compared to 2013, whereas the annual unplanned outage hours increased by 42%. The increase in unplanned outage hours was attributed to system disturbances, but there was no clear evidence of a system disturbance²³. (d) Number of annual power outages increased by 37% in 2018 compared to 2013 but decreased by 11% in 2021 compared to 2013. Relating to (e) transmission loss ratio, there was a slight increase of 10%, whereas there was a 56% decrease between 2013 and 2020 for the distribution loss ratio. (f) Amount of electricity supply increased by approximately 40% for both transmission and distribution. As a result of the above, the reference indicators were only partially achieved.

²² Transmission and distribution losses in Accra Metropolitan Area are the sum of transmission losses (b1) and distribution losses (b2). The transmission losses represent the transmission losses between the Akosombo hydroelectric power station and the Aboaze thermal power station, whereas the distribution losses represent the losses on the 33kV sub-transmission lines and transformers in the Accra Metropolitan Region.

²³ According to the ECG, there is no evidence for this because system shutdowns due to unauthorised system access (called galamsey in Ghana) are frequent. Galamsey means illegal mining but is also used to refer to illegal activities that disrupt the system (e.g., stealing power illegally from the power grid).

Table 8 Result of reference indicators²⁴

Indicators	2013	2018	2020	2021
(c) Annual planned outage hours (hour)	13,373	1,080	521	652
(c) Annual unplanned outage hours (hour)	3,733	3,883	6,052	6,420
(d) Number of annual power outages	7,176	11,462	8,080	6,420
(e) Transmission loss ratio (%) ²⁵	4.49	4.43	4.5	5.01
(e) Distribution loss ratio (%)	3.95 (2012)	1.81 (2017)	1.74	N/A
(f) Amount of electricity supply: transmission (GWh)	12,927	15,960	19,717	21,466
(f) Amount of electricity supply: distribution (MWh)	3,430,502	4,603,694	5,149,528	5,879,026

(Source: prepared by the evaluator based on questionnaires and interviews to GRIDCo and ECG)

The presence or absence of overloads on transformers, as well as on transmission and distribution lines, was set as an additional reference indicator because external experts have commented that it is important to check for overloads on transformers, as well as on transmission and distribution lines, to confirm the effectiveness of the electricity distribution facilities plan. If this project was not implemented, transformer overloads could occur at the Achimota, Malang, and A3 BSP²⁶ in 2018, disrupting the supply of electricity to the Accra Metropolitan Area²⁷. Between the end of the project and 2021, there were no overloads on transformers and transmission lines, etc. However, an overload²⁸ occurred on the transmission line between Achimota BSP, Accra Central BSP, and Malang BSP in 2022. This overload had a negative impact on the electricity supply in Accra²⁹. According to GRIDCo, the causes of overload were as follows: 1) Existing (old) transmission lines had limited capacity between Achimota BSP-Accra Central BSP-Mallam BSP³⁰; and 2) the power load drawn from the Accra Central BSP exceeded the capacity of the existing transmission line. Therefore, it was concluded that indicators on the presence or absence of overloads were not achieved.

The quantitative effects of effectiveness are summarised below. With regard to the quantitative effectiveness (operation indicators), (a) Capacity of transformers in Accra has been achieved. Regarding (b) Transmission and distribution losses in the Accra Metropolitan Area, it was determined that project effectiveness cannot be measured by this indicator because the target value of this indicator needs to be revised. As reference information, the actual value of transmission losses could not be obtained. Distribution losses were achieved, albeit for reference

²⁴ The figures from (c) to (f) are for the Accra Metropolitan Area as a whole.

²⁵ Transmission loss ratios are for the entire Accra Metropolitan Region and cannot be calculated for each BSP area alone.

²⁶ There are five BSPs in Accra: Achimota, Malang, A3, Pokuase, and Accra Central.

²⁷ Preparatory survey report.

²⁸ 'Overload' refers to the phenomenon of a larger power (load) being applied than the power allowance. In this case, the overload was determined as the point at which the transmission line reached its maximum capacity of 170 MW and tripped.

²⁹ Questionnaire and interviews with ECG.

³⁰ These transmission lines were subsequently upgraded from 170 MW to 488 MW.

information. Concerning the reference indicators, decreases were observed in (c) Annual planned outage hours, and (d) Number of annual outages. (f) An increase in electricity supply was confirmed for both transmission and distribution. (e) Distribution loss ratio also decreased. On the other hand, (c) Annual unplanned outage hours increased significantly, probably due to system disturbances, and (e) transmission loss ratio increased slightly. With regard to the additional reference indicator of overloading, no effect was identified because transmission line overloading was identified in 2022 and affected electricity supply within Accra.

3.3.1.2 Qualitative Effects (Other Effects)

Regarding qualitative effects, it was planned to check the ‘increase in electricity supply’ and ‘stability of electricity supply’ from each of the facilities listed in Table 9 below in order to identify improvements in electricity supply. However, regarding the increase in electricity supply, data could not be obtained from each of the facilities interviewed. An increase in electricity supply in the Accra Metropolitan Area was confirmed as described above.

For ‘stability of electricity supply’, eight facilities were interviewed, as shown in Table 9³¹. It seems that the effects on ‘security of electricity supply’ were only partially achieved. Regarding 1) Stability of electricity supply, three institutions-the University of Ghana, Japan Motors, and Ridge Hospital-indicated that electricity supply was stable compared to before the project was implemented. Regarding the Noguchi Memorial Institute of Medical Research (NMIMR) and Graphic Communications, they stated there had been no significant change compared to before. Regarding 2) Number of outages and 3) Outage hours, only two institutions-University of Ghana and Japan Motors-stated there had been a decrease. Ghana Institute Journalism and Graphic Communications replied that there had been no decrease. NMIMR and Ridge Hospital replied that they didn’t know.

Because no facility had data on the number of outages and outage hours from before the project implementation to the time of the ex-post evaluation, the qualitative responses of the persons in charge were compiled.

³¹ When the evaluation policy was prepared, it was planned to check with commercial facilities (Accra Mall), higher education institutions (University of Ghana), and medical facilities (NMIMR), but information provided by the JICA Ghana Office and ECG revealed that they were not direct beneficiaries of the Accra Central BSP. (These facilities are not direct beneficiaries as they are not in the area under the jurisdiction of Accra Central BSP but in the area under the jurisdiction of other BSPs. However, the BSPs in the Accra Metropolitan Region are closely linked to each other and therefore indirect beneficiaries of the Accra Central BSP.) Therefore, by the recommendation of the JICA Ghana Office, Japan Motors, Ghana Institute Journalism, Graphic Communications, and Accra Brewery were added to the list of interviewees. The Ridge Hospital, a medical institution, was also added to the list during the secondary survey.

Table 9 Result of interviews with each facility on stability of electricity supply

Facility name	1) Stability of electricity supply	2) Decrease in number of outages	3) Decrease in outage hours
Accra Mall	Y/N	Y/N	Y/N
University of Ghana	Y	Y	Y
NMIMR	N	N/A	N/A
Additional interviewees.			
Japan Motors	Y	Y	Y
Ghana Institute Journalism	Y/N	N	N
Graphic Communications	N	N	N
Accra Brewery	Y/N	Y/N	Y/N
Ridge Hospital	Y	N/A	N/A
Total	Y 3, Y/N 3, N 2	Y 2, Y/N 2, N 2	Y 2, Y/N 2, N 2

(Source: prepared by the evaluator based on questionnaires and interviews with eight facilities)

Note: Y for Yes, N for No; Y/N for Yes and No, see footnote³², for N/A, the answer was that they didn't know. The sample size was 9 and responses were obtained from 8 facilities³³.

The qualitative effects of the effectiveness of the project are summarised as follows. It seems that effectiveness is only observed to be achieved in some facilities pertaining to the stability of electricity supply, decrease in the number of outages, and reduction in outage hours. As a result of the above, the project has achieved the expected project effects to some extent, but some of the effects have not been achieved.

3.3.2 Impacts

3.3.2.1 Intended Impacts

With regard to impact, quantitative effects were not established as an indicator at the time of planning. For qualitative effects, stabilisation of residents' life and industrial development were

³² The Ghana Institute Journalism responded that the electricity supply was a little more stable than before and that the frequency of generator use had decreased but that the number of power outages had not improved. Regarding the duration of power outages, the questionnaire indicated that the duration of power outages had not improved. In the interviews, the respondents answered that the duration of each power outage had decreased but that the number of power outages had not improved in their experience and were more frequent, so it concluded the answer was yes and no.

Accra Mall responded that the duration of generator use and power outages had not changed much compared to previous years but that they felt a little better than before. Because the details of the answers in the questionnaire were not clear, they were rechecked. As a result, it was found that the supply of electricity has stabilised a little, but there are still power surges and the switch to the use of generators to prevent undesirable effects for air-conditioning and other equipment. Therefore, all answers were marked as yes and no.

Accra Brewery said that the power supply was a little more stable than in the past, and the number and duration of power outages had decreased a little, but this year the power outages were severe and the power supply was not stable. Thus, all answers were marked as yes and no. According to GRIDCO, "the causes of outages were that GRIDCO had taken out a section of the grid (161 kV Achimota-Mallam transmission line) for reconstruction work, and voltage stability was improved". However, unfortunately, supporting evidence for this information could not be obtained.

³³ No response was received from Junction Mall.

set. The qualitative effects on the stabilisation of residents' life were examined as follows: impact on higher education institutions, impact on medical facilities, and impact on the neighbourhood.

1) Impact on higher education institutions

Impacts on higher education institutions were identified. At the University of Ghana, a decrease in the frequency of generator use was observed, with a corresponding decrease in energy costs. Concerning improved convenience in campus life, stable electricity supply improved student life by allowing students to stay on campus late into the evening to study. In particular, many students are able to go to the Baam library late into the evening to study. There was no particular change in the number of cancelled or alternative classes because the university has generators in all lecture facilities. These generators are used in outages, so there was no class cancellation as a result of outages.

2) Impact on medical facilities³⁴

With regard to the impact on medical facilities, only a partial improvement in the convenience of medical facilities due to the stability of electricity supply was confirmed. Regarding the stability of electricity supply, the NMIMR responded that there had been no significant changes from before, so the development of impacts, such as the progress of medical research, could not be confirmed. The Ridge Hospital responded that the electricity supply had stabilised and that medical care had become more convenient. The frequency of use of generators at the NMIMR³⁵ and Ridge Hospital was unknown.

3) Impact on the neighbourhood

The impacts on the neighbourhood are shown in Table 10 below. The development of the impact on livelihood improvement due to the stability of electricity supply was confirmed. With regard to the details of livelihood improvement, 87.5% of households stated that the stability of electricity supply had improved since before the project was implemented. Regarding the outage hours and frequency of outages, about 80% of households stated that they had decreased. When asked whether electricity stability had contributed to improved livelihoods, 75% of households said it had. In terms of how it contributed to improved livelihoods, the largest proportion of households said that it improved their work efficiency, as shown in Table 11. The next most common answers given by households were improved learning environment for children at home, more efficient household chores, more leisure time, improved security through the use of electricity at night, and the opening of new shops.

As described above, regarding the impact on the stabilisation of residents' lives, the impact on

³⁴ Questionnaires and interviews to NMIMR, Ridge Hospital.

³⁵ The number of uses cannot be counted, as the generator starts automatically when the voltage drops and rises.

higher education institutions was confirmed as a decrease in the frequency of generator use with the reduction in energy costs and the impact of improved convenience in campus life. With regard to the impact on medical facilities, it was partially confirmed that the stability of electricity supply improved the convenience of medical facilities. The impact on neighbouring residents was also confirmed in terms of the impact of improved livelihoods due to the stability of electricity supply.

Table 10 Impact on the neighbourhood³⁶

Question	Answer		
	Yes	No	Unknown
Stability of electricity supply	35	5	0
Decrease in the number of outages	31	8	1
Decrease in the outage hours	32	7	1
Contribution to improved livelihoods through stability of electricity supply	30	7	3

(Source: prepared by the evaluator based on questionnaires and interviews with neighbourhood residents)

Table 11 Detailed contribution for the improvement of livelihoods

Contribution to improved livelihoods through stability of electricity supply	Number of responses	Percentage
Improved efficiency of work	17	42.5%
Improved learning environment at home	14	35.0%
Improved efficiency of household chores	12	30.0%
Improved leisure time	10	25.0%
Improved public safety by using electricity at night	8	20.0%
Opening new shops	5	12.5%
Promotion of women's participation in society	0	0.0%
Others	0	0.0%

(Source: prepared by the evaluator based on questionnaires and interviews with neighbourhood residents)

The qualitative effects on industrial development were examined relating to commercial facilities, impact on enterprises, and economic activity in the centre of Accra.

³⁶ Results of interviews with 40 households living near the Accra Central BSP, conducted between 31 May and 6 June 2022. 23 male and 17 female residents were interviewed. All interviewed residents have been living in the area since before the project was completed. As a list of residents did not exist, the interviews were conducted by visiting every three houses around the BSP and using a random sampling method.

1) Impacts on commercial facilities and enterprises

With regard to the impact on commercial facilities and businesses, the impact was limited in terms of a reduction in the frequency of generator use. Only two facilities-Japan Motors and Ghana Institute Journalism-indicated a decrease in the frequency of generator use. Three facilities-Accra Mall, Graphic Communications, and Accra Brewery-stated that there had been no decrease.

2) Increased economic activity in central Accra

It was difficult to ascertain whether economic activity in the centre of Accra had increased. To check whether economic activity has increased, the evaluator asked Accra Mall whether the ease of shopping and doing business in the commercial facilities had improved, but the impact of the project could not be confirmed due to the significant impact of COVID-19. Regarding the improvement in production and consumption, it was also determined that COVID-19 had a significant negative impact on agricultural production activities and a negative impact on food distribution³⁷, making it difficult to confirm the impact of the project.

As mentioned above, regarding the impact on industrial development, the expression of the impact on the frequency of generator use was only observed in less than half of the commercial facilities and companies interviewed. With reference to the increase in economic activity, it was difficult to determine.

3.3.2.2 Other Positive and Negative Impacts

Regarding ‘other positive and negative impacts’, no negative impacts were identified by the project, as described below. With regard to positive impacts, only the expression of the impact of technology transfer through implementation of the project was observed.

1) Impacts on the Natural Environment³⁸

According to the literature review and the results of interviews with GRIDCo, ECGs, and people living near the Accra Central Substation during the ex-post evaluation, as well as field visits from the time of planning to the time of the ex-post evaluation, no negative impacts on the natural environment were identified as a result of this project. Because this project does not correspond to a large-scale power transmission and distribution sector as based on the JICA Guidelines for the Confirmation of Environmental and Social Consideration (April 2010), the undesirable effects on the environment were judged to be insignificant. In addition, because this project did not correspond to the sensitive characteristics and sensitive areas based on the

³⁷ Questionnaire and interviews with Accra Mall.

³⁸ Questionnaire and interviews with GRIDCo, ECG, and implementation consultants, Environmental Assessment (EIA), and environmental monitoring reports.

guidelines, this project was classified as Category B³⁹.

Negative impacts related to water pollution, soil pollution, or air pollution were not identified during construction and when starting operation. Regarding noise and vibration during construction, there were no complaints from neighbours during and after the implementation of the project. For mitigation of a noise and vibration, the construction work was finished early in the evening to avoid disturbing the neighbouring residents. For noise mitigation measures after construction, the transformer is placed in a metal box to reduce noise.

Regarding environmental and social considerations, GRIDCo's Engineering Department was responsible for checking complaints about environmental issues as the project head. The Land and Environment Department was responsible for monitoring and reporting on environmental issues. Because approximately USD 62,000 was allocated for monitoring costs, USD 30,000 for preparation of the EIA, and USD 20,000 for training of the environmental maintenance team, sufficient money had been allocated to address environmental issues.

2) Resettlement and Land Acquisition⁴⁰

No negative impact expression on resettlement and land acquisition by this project was identified. The results on resettlement and land acquisition are shown in Table 12. At the time of planning (2015)⁴¹, this project involved the acquisition of approximately 0.405 ha of land and the involuntary resettlement of 177 people from 35 households, and land acquisition was planned to be carried out in accordance with Ghanaian national procedures and JICA Guidelines (151 people from 23 households were planned at the time of the preparatory survey)⁴². As a result, the number of resettled households and the number of people resettled were significantly reduced to one person from one household.

Explanations for the significant reduction in the number of households and persons relocated are as follows. As part of the Accra Metropolitan Assembly's decongestion exercise, which is unrelated to the project, a majority of households were properly relocated before the project's land acquisition and resettlement process was initiated⁴³. Therefore, compensation to illegal land occupiers, which was expected at the time of planning, did not occur. Compensation was only incurred for the expropriation of land for the construction of pylon N19 due to the rerouting of the 161kV transmission line. Hence, the number of households relocated and the number of people relocated were significantly lower than anticipated at the time of planning.

This section describes the handling of claims relating to the land acquisition for the construction

³⁹ The Ex-ante Evaluation Sheet.

⁴⁰ Questionnaire and interviews with GRIDCo and documents from Land Commission, Land Valuation Division, and Adabraka Official Town yearbook of assembly.

⁴¹ As it is a slum, the land is illegally occupied, and the number of households had increased when one year had passed since the preparatory survey in 2014 (Implementation consultant interviews).

⁴² The Ex-ante Evaluation Sheet.

⁴³ GRIDCo was not aware in advance of the Accra Metropolitan Assembly's plans for decongestion exercises. The Accra Metropolitan Assembly occasionally conducts decongestion exercises to reduce congestion in the city.

of pylon N19. At the time of planning, no specific disagreement with this project was raised by the affected residents. However, during the implementation of the project, a dispute arose when residents in the surrounding area complained about the safety of the 161 kV underground cable route to be laid between pylon N19 and the Accra Central BSP. The dispute with the landowners around pylon N19 was that the church requested for compensation regarding additional land for which they did not have documented proof of ownership. The compensation for that land was subsequently dismissed by the court as the church failed to provide evidence of ownership as required by law. It took three months to resolve the dispute. Otherwise, there were no other specific disputes or complaints during the land acquisition.

Compensation due to resettlement and land acquisition was carried out in accordance with JICA Guidelines, and compensation payments were made prior to the start of construction. Compensation was paid to four persons, including one resettled household and two organisations (a church and a company). Monitoring on land acquisition was carried out on a quarterly basis, but there were no reports on monitoring results.

Table 12 Result for resettlement and land acquisition

Year	Cost (GHC)	Number of resettlement households	Number of resettlement people	Total area of land acquisition (ha)
2014	1,385,788	23	151	0.405
2015 ⁴⁴	2,546,000	35	177	0.405
2021	466,350	1	1	0.405

(Source: Questionnaires and interviews with GRIDCo)

3) Gender equality

Gender-related manifestations of impact were limited. Because many women participated in selling ice blocks, making dresses, working in bakeries, food processing treatment, etc., it seems that the security of electricity supply have had a positive impact on the livelihoods of many women⁴⁵. However, as shown in the results of interviews with neighbourhood residents in Table 11, the expression of impact on the promotion of women's participation in economic and social activities could not be confirmed⁴⁶.

4) Marginalized People

The manifestation of impact on marginalised people was also limited. Before the implementation of the project, many low-income communities had experienced multiple power outages, affecting their health, income, and general livelihoods. However, the improved electricity

⁴⁴ Interviews to implementation consultant. See footnote 41 for details.

⁴⁵ Questionnaire and interviews with ECG.

⁴⁶ Forty neighbours, including 17 women, were interviewed.

supply in the project area seems to have contributed to some extent to improving the livelihoods of the low-income community members⁴⁷.

5) Social Systems and Norms, Human Well-being and Human Rights

As mentioned above in Table 11, this project has contributed to some extent to improving the lives of the population in terms of increased efficiency in work and household chores and improved learning environments at home.

6) Unintended Positive/Negative Impacts

About the others, the impact manifestation of technology transfer due to the implementation of the project was observed. The regular quality and safety compliant meetings were held under the project to ensure quality and zero accidents during construction, so no accidents occurred during the implementation of this project⁴⁸. In addition, the contractors involved in this project are still working at other GRIDCo projects and are ensuring that safety-compliant meetings and protocols are adopted. As mentioned above, the implementation of Japanese-style safety and construction quality management in the project led to safe construction and high-quality management. Since then, the contractor has continued to implement safety management in other projects.

As mentioned above, no negative impact manifestations were observed as a result of the implementation of this project.

The summary of effectiveness and impact is as follows. With regard to the quantitative effects of effectiveness, effects were found for the achievement of capacity of transformers in Accra, reduction in annual planned outage hours, reduction in the number of annual outages, increase in transmission and distribution electricity supply, and reduction in distribution loss ratio. However, some effects were not identified for annual unplanned outage hours, transmission loss ratio, and transmission line overloads. Qualitative effects were only observed to be achieved in some facilities in terms of stability of electricity supply, reduction in the number of outages, and reduction in the outage hours. In addition, although no negative impacts were observed as a result of the implementation of the project, the expected impacts, which are stabilisation of residents' livelihoods and industrial development, were limited. This project has achieved its objectives only to a certain extent.

Therefore, effectiveness and impacts of the project are moderately low.

3.4 Sustainability (Rating: ③)

3.4.1 Policy and System

Concerning sustainability in terms of policy and institutional aspects, *Ghana Long-Term*

⁴⁷ Questionnaire and interviews with ECG.

⁴⁸ These meetings took place every morning, including with Japanese construction companies.

National Development Plan 2018-2057 mentioned the importance of developing an electricity infrastructure, including power generation, transmission, and distribution, in order to build secure communities. Therefore, the project is consistent with Ghana’s national development policy, and there is a high prospect that the effects generated by the project will be sustained in the future.

3.4.2 Institutional/Organisational Aspect⁴⁹

Regarding sustainability in terms of institutional and organisational aspect, the operational structure of the electricity system in Ghana is shown in Table 13. Compared to the planning period, GRIDCo is now able to operate for the 330 kV and 225 kV voltage classes.

In ‘Java-Bali Transmission Line/Substation Development Project (1992, grant aid)’ in Indonesia, it was pointed out that the lesson learned was that the expansion of electricity supply facilities capacity beyond medium pressure after the project implementation was insufficient to meet the potential demand. Although the implementation consultant did not have any specific knowledge of similar projects, they made highly accurate electricity demand assumptions, including potential demand⁵⁰. GRIDCo is now able to manage the construction of high-voltage substations above 161 kV in Accra and other regions of Ghana, as shown in Table 13. It can therefore be said that the lessons learned from previous evaluations of similar projects have been applied to this project.

Table 13 Operational structure of the electricity system in Ghana

Sector	Operator	Voltage class (at planning)	Voltage class (at ex-post evaluation)
Generation	VRA ⁵¹	-	-
Transmission	GRIDCo	161 kV, 69 kV	330 kV, 225 kV, 161 kV, 69 kV
Distribution	ECG	33 kV, 11 kV and low voltage	33 kV, 11 kV and low voltage
	NEDCo ⁵²	34.5 kV, 11.5 kV and low voltage	34.5 kV, 11.5 kV and low voltage

(Source: prepared by the evaluator based on preparatory survey report, questionnaires and interviews with GRIDCo, ECG)

With regard to the organisation at the time of project implementation, the project team consisted of one project manager, two engineers, two field technicians, and two design managers⁵³. Regular project meetings were held between GRIDCo and ECG engineers, and there was a resident location. Regarding the management structure after the project has ended, engineers and technicians from GRIDCo and ECG are stationed at Accra Central BSP and cooperate in the management of the facilities.

⁴⁹ Questionnaire and interviews with GRIDCo and ECG; field survey of Accra Central substation by visual inspection and interviews.

⁵⁰ Questionnaire and interviews with GRIDCo and implementation consultants.

⁵¹ Volta River Authority.

⁵² Northern electricity distribution company.

⁵³ For engineers, field technicians, and design managers, they were from GRIDCo and ECG for transmission and distribution, respectively.

3.4.3 Technical Aspect⁵⁴

About technical sustainability, with some exceptions, both GRIDCo and ECG have sufficient technology for operation and maintenance.

For the Accra Central BSP facilities, the areas around each facility and equipment, including the 161 kV transmission lines, were well maintained. The 161 kV gas insulated switchgear, which is unfamiliar in Africa, was also properly maintained at the time of the ex-post evaluation. Therefore, both companies have sufficient skills to carry out operation and maintenance on the equipment at Accra Central BSP.

Both companies have manuals in place and use them effectively, and they regularly maintain their equipment, including each facility of the Accra Central BSP. Maintenance reports are recorded and filed as part of the annual report. In addition, both GRIDCo and ECG regularly conduct complementary technical and safety management training. They also receive the same training provided by external organisations and have the opportunity to share the knowledge gained.

On the other hand, GRIDCo is concerned about the lack of engineers who can repair and maintain the 161 kV cable in the future when repairs are required. With regard to the maintenance of the high-voltage underground cable, Accra Central BSP is the first BSP that GRIDCo is responsible for⁵⁵. Hence, GRIDCo intends to build capacity to repair 161kV cables in the future.

As described above, GRIDCo and ECG have sufficient technology to operate and maintain the equipment of the Accra Central BSP, with the exception of the 161kV cable, and have implemented appropriate operation and maintenance management.

3.4.4 Financial Aspect⁵⁶

The financial sustainability of the project was examined. GRIDCo has allocated approximately 46,000 GHC for maintenance fees in 2018 (20,000 GHC in 2012), which is a steady increase in maintenance costs. ECG has also allocated approximately 266,000 GHC for maintenance and repairs in 2020⁵⁷. As for GRIDCo's net income, it was 182,280 GHC in 2020 (64,490 GHC in 2012), which is approximately three times higher. Therefore, GRIDCo and ECG seem to be able to adequately operate and maintain their operations at present and in the future.

3.4.5 Environmental and Social Aspect

As discussed in '3.3.2.2 Other Positive and Negative Impacts 1) Impacts on the Natural

⁵⁴ Questionnaire and interviews with GRIDCo, ECG, and implementation consultants; field survey of Accra Central substation by visual inspection and interviews.

⁵⁵ ECG (cooperating agency) operates an extensive underground network and as such they have a cable repair group that is responsible for mending cable failures in their network.

⁵⁶ GRIDCo annual report 2018 and GRIDCo annual report draft 2020.

⁵⁷ ECG Financial Statement 2020. The data at the time of planning could not be confirmed.

Environment, no significant impacts on the natural environment were found.

Also, no negative environmental and social impacts were identified from the time of planning to the time of the ex-post evaluation, according to the literature review, the results of interviews with GRIDCo and people living near the Accra Central BSP, and the results of field visits during the ex-post evaluation. Therefore, it is considered unlikely that negative impacts on natural environmental and social aspects will occur in the future.

3.4.6 Preventative Measures to Risks

In terms of addressing risks, the risks related to external factors that were assumed at the time of planning did not develop. In the Accra Metropolitan Area, the electricity demand has been increasing year by year, but this area did not face an increase in electricity demand exceeding the planning assumptions. Also, there was also no negative impact on safety due to the lack of OJT for the operation and management of the 161 kV gas insulated switchgear.

3.4.7 Status of Operation and Maintenance

As described in '3.4.3 Technology', the operation and maintenance of the equipment were adequate and equipment was in good working order.

The effects of sustainability were summarised. No major problems in terms of structure, technology, and finance have been encountered at GRIDCo (executing agency) and ECG (the cooperating agency). From the above, slight issues have been observed in the operation and maintenance of the project; however, there are good aspects for improvement/resolution. Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

The project was implemented with the objective, which is to supply stable electric power and reduce electric power transmission and distribution loss at capital city Accra, Ghana by constructing a core transmission and substation facility, thereby contributing to the stabilisation of residents' lives and industrial development.

The project is consistent with Ghana's development policy, development needs, and Japanese aid policy at the time of planning. Synergies with internal and external JICA projects have been identified based on prior coordination and planning. Hence, relevance and consistency are high. Although the project period was slightly longer than the plan, the project costs were within the planned amount, so efficiency is high. Regarding the quantitative effects of effectiveness, the effects of achieving capacity of transformers within Accra, reducing the annual planned outage hours, reducing the annual number of outages, increasing the transmission and distribution

electricity supply, and reducing the distribution loss ratio were identified. However, no effects were observed for annual unplanned outage hours, transmission loss ratio, and transmission line overloading. Qualitative effects were only observed to be achieved in some facilities with regard to the stability of electricity supply, reduction in the number of power outages, and reduction in the duration of power outages. In addition, no negative impacts were observed as a result of the implementation of the project, but the expected impact set at the time of planning, namely ‘stabilisation of residents’ livelihoods and industrial development’, was limited. Therefore, effectiveness and impacts of the project are moderately low. Although there are some minor technical problems in the operation and maintenance of the project, there are no problems in other areas such as the structure and financial aspects. Therefore, sustainability of the project effects is high.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

It is recommended that GRIDCo continues to share information with other BSPs so that the experience gained from this project can be used to strengthen the operational capacity of BSPs across Ghana. In particular, it is desirable that Japanese-style safety management practices are applied in future projects implemented by GRIDCo and in other projects, not being limited within the projects currently implemented by GRIDCo.

4.2.2 Recommendations to JICA

Because GRIDCo is concerned that there are no technicians who can maintain the 161 kV cable, it is recommended that JICA provides training on cable maintenance to help build the capacity to repair the cable in the future.

4.3 Lessons Learned

Setting effective indicators to measure project effectiveness

As discussed in ‘3.3.1.1 Quantitative Effects (Operation and Effect Indicators)’, in this project, indicators that cannot properly measure the project effects, i.e., that include the effects of other projects (external factors), were set. Specifically, in the project, the capacity of transformers (MVA) in Accra is an indicator that includes the effects of other projects and is not an appropriate indicator to confirm the effects of this project. The capacity of transformers for the Accra Central BSP should have been set as an indicator. As described above, appropriate indicators for effectiveness should be set based on the characteristics of the project, and in order to properly measure project effectiveness, it should be avoided to set indicators that include the effects of other projects (external factors).

In addition, with regard to the indicator for transmission and distribution losses (MW), the effectiveness of the project could not be confirmed because the indicator for transmission losses was set for a section of wire where actual measurements could not be taken due to the lack of meters. Therefore, when measuring project effects in similar projects, the indicators should be set for sections where actual measurements can be confirmed by meters.

Records to confirm project effectiveness

As discussed in '3.2.2.1 Project Cost', the data about inputs on the Ghanaian side were not available in the project. GRIDCo also did not record monitoring results on resettlement and land acquisition. Therefore, when implementing similar projects, executing and cooperating agencies should keep records of input items on the part of the implementing country. In addition, for projects with resettlement and land acquisition, executing agencies should record the monitoring results on resettlement and land acquisition in the form of reports or other. With regard to the above two data, the importance of keeping records and data should be carefully explained to the executing and cooperating agencies at the time of planning by the implementer of the preparatory survey and JICA. Furthermore, during implementing the project, the implementation consultants and JICA should have the opportunity to check regularly whether the executing and cooperating agencies are properly recording and keeping the data.

5. Non-Score Criteria

5.1 Performance

5.1.1 Objective Perspective

1) Support of implementation consultant and JICA⁵⁸

The support to executing agency was checked, and it was confirmed that the implementation consultant provided adequate support to GRIDCo during the implementation of the project, in terms of project maintenance through the organisation of regular progress meetings and problem-solving with the contractor. It was confirmed that the JICA Ghana Office provided adequate support to the implementation consultant for problems such as delays in the acquisition of land for the installation of transmission lines, which was a GRIDCo's responsibility.

5.2 Additionality

There is nothing in particular.

⁵⁸ Questionnaire and interviews with GRIDCo and implementation consultants.

Republic of Sierra Leone

FY2021 Ex-Post Evaluation Report of Technical Cooperation Project

"The Project for Capacity Development for Comprehensive District Developments in the Northern Region of Sierra Leone"

External Evaluator: Sachiko Matsumoto,
Foundation for Advanced Studies on International Development

0. Summary

This Project was undertaken in the Northern Region¹ of the Republic of Sierra Leone (hereinafter referred to as Sierra Leone) with the aim of enabling Local Councils (LCs)² and Ward Committees (WCs) in order to carry out their functions and roles in accordance with the *Local Government Act* (LGA 2004) and to manage district development projects efficiently and effectively.

The objectives of the Project are consistent with the decentralization and development policies of the Government of Sierra Leone and are consistent with development needs, except during the Ebola Virus Disease (EVD) outbreak.³ The objectives of the Project are also consistent with Japan's development cooperation policy toward Sierra Leone, and the collaboration between LCs and Ministries, Departments and Agencies (MDAs) was facilitated through JICA's health and agriculture projects in the region. In collaboration with other donors, the Project worked to revise the Local Councils' Development Operational Guidelines (hereinafter referred to as the Guidelines) to make them more practical and suitable for dissemination. Therefore, the Project's relevance and coherence are high. The Project mostly achieved its purpose at its completion, as the targeted District Councils and WCs in the Northern Region were able to manage community development programs by ensuring that the structure and roles were in line with the Guidelines. However, at the time of the ex-post evaluation, the LCs in the Eastern and Southern Regions had not managed development projects using the Guidelines; thus, the Overall Goal has not been achieved. In addition, the Northern Region has had little lasting effect on the Project due to the transfer of former counterparts. Therefore, the effectiveness and impacts are moderately low. The Project period and Project cost slightly exceeded the plan but not by a large margin. Therefore, the Project's efficiency is high. In terms of sustainability, there is a strong political will in which the operationalization of the Guidelines at the national level is specified in the *Sierra Leone's Medium-Term National Development Plan (2019-2023)*. On

¹ In 2017, the Local Government Act was partially amended, and the Northern Region was divided into two regions: the Northern and North Western Regions. In addition, two new districts (Karene and Falaba) were created within the former Northern Region.

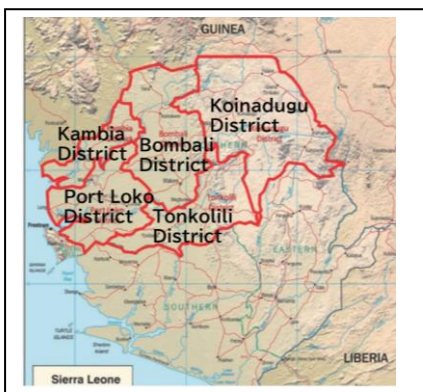
² LCs consisted of 15 District Councils and seven City Councils at the time of the ex-post evaluation. In general, these councils are called "Local Councils." In this report, "District Council" is used when describing the specific council of a district.

³ During the Ebola outbreak, emergency responses were utilized through a centralized system, and essential services were prioritized.

the other hand, there are technical and financial challenges in the dissemination and utilization of the Guidelines. However, there is a prospect of improvement and resolution thanks to the successor Project, which will continue until 2025. Therefore, the Project’s sustainability of effects is high.

In light of the above, this Project is evaluated to be satisfactory.

1. Project Description



Project Location

Source: Project Final Report (2019).
District Names added by the evaluator.



Consulting with Community Members

Source: URL address,
<https://www.jica.go.jp/Project/sierraleone/0901171/index.html>(cited 2023-03-01.)

1.1 Background

The decade-long civil war in Sierra Leone since 1992 ended in January 2002. President Kabbah, who took office after the end of the civil war, prioritized local government reform as one of his key policies. The *Local Government Act* was enacted in 2004. The law established a framework for the formulation of *District Development Plans* by LCs, the construction of social infrastructure, and the delivery of various administrative services. It also established WCs, which are formed in each ward (parliamentary constituency) as the lowest tier within the decentralization structure, and a mechanism to reflect the needs of the community in local development. However, due to the lack of personnel and limited capacity of LCs and WCs, projects could not be carried out in line with the mechanism stipulated in the Act, and the urgent issue was to strengthen the institutional capacity and human resources for efficient and effective regional development.

Under these circumstances, JICA, at the request of the Government of Sierra Leone, has identified the Ministry of Local Government and Rural Development (MLGRD), Kambia District Council (KDC), and Port Loko District Council (PLDC) in the Northern Region as counterpart agencies to implement “the Project for Capacity Development for Comprehensive District Developments in the Northern Region of Sierra Leone” for five years, starting in November 2009.

The Project was originally scheduled to end in October 2014, but the EVD began to

spread in West Africa. As a result, the Project was temporarily suspended in August 2014. In November 2015, the Government of Sierra Leone declared an end to the Ebola outbreak. The Project was resumed in January 2016. Upon resumption, the Project was extended until July 2018 with the addition of the Output of the promotion of Ebola recovery and by adding the three remaining districts of the Northern Region (Bombali, Tonkolili, and Koinadugu) to the target districts. During the extended period, the Project contributed to the recovery from Ebola and strengthened the LCs' service delivery capacity through the recovery activities.

1.2 Project Outline⁴

Overall Goal		LCs' development operations are improved in the Eastern and Southern Regions in addition to the Northern Region.
Project Purpose		Strengthen the structure and function of District Councils and WCs to manage district/rural development more effectively and efficiently in Kambia and Port Loko Districts and other 3 districts (Bombali, Koinadugu, Tonkolili) in the Northern Region.
Output(s)	Output 1	The District/Rural Development Model in Kambia and Port Loko Districts is established through pilot and model Projects.
	Output 2	Capacities of District Councils and WCs in Kambia and Port Loko Districts are developed for more effective and efficient District/Rural Development Management.
	Output 3	The system to disseminate District/Rural Development Model to each district is established by MLGRD ⁵ .
	Output 4	Practical capacities, including the ability to apply into Ebola recovery, are developed in the five districts of the Northern Region ⁶ .

⁴ Based on the latest version of the Project Design Matrix (PDM) (7th edition). Partial changes made by the evaluator during the ex-post evaluation are explained in the footnotes.

⁵ Outcome 3 of the latest version of the PDM is "The system to disseminate District/Rural Development Model to each district is established by MLGRD, and related Acts/Policies of MLGRD are modified". One of the indicators of Output 3, "Modified related Act/Policy", was deleted based on the Mid-term Review (2012), as it was found that the indicator was not expected to be achieved within the Project period due to the delay in the parliamentary progress. However, the Narrative Summary of Output 3 was not revised. Thus, "related Acts/Policies of MLGRD are modified" was removed from Output 3 at the ex-post evaluation.

⁶ Output 4 of the latest version of the PDM, "Ebola recovery is accelerated in the five districts in the northern region" is synonymous with the implementation of development projects during the extension period (Ebola recovery period), therefore it does not indicate the Output representing a means to achieve the Project Purpose which is to strengthen the structure and functions of the LCs and WCs. In addition, the indicators for Output 4 contained a mixture of indicators representing the Project Purpose and Overall Goal. In the ex-post evaluation, the logical relationship between the Project Purpose (objective) and Outputs (means) was reorganized and evaluated.

Total cost (Japanese Side)	1,305 million yen
Period of Cooperation	November 2009 - February 2019 (Extension period: January 2016 - February 2019)
Target Area	Northern Region (Kambia, Port Loko, Bombali, Tonkolili, Koinadugu)
Implementing Agency	MLGRD, KDC, PLDC,. Bombali District Council (hereinafter referred to as BDC) Tonkolili District Council (hereinafter referred to as TDC) Koinadugu District Council (KoinDC)
Other Relevant Agencies/ Organizations	MDAs
Consultant/ Organization in Japan	(Extension Period ⁷) NTC International Co., Ltd.
Related Projects	(Technical Cooperation Projects) The Project for Capacity Development to Strengthen Local Resilience in Sierra Leone (2021-2025) (Other international organizations and aid agencies) The World Bank (WB): The Institutional Reform and Capacity Building Program (IRCBP) and supporting the temporary Secretariat, Decentralization Secretariat (DECSEC) (2004-2011); Decentralization Service Delivery Programme (DSDP) (2009-2015); United Nations Development Programme (UNDP): Kenema District Economic Recovery Programme (KDERP) (2007-2012)

1.3 Outline of the Terminal Evaluation

The following is a summary of the Project's terminal evaluation.⁸

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

The Project Purpose was almost achieved. The achievement of the indicator "By the end of the Project, service delivery of District Councils and WCs based on the structure and the function indicated in the District/Rural Development Handbook is provided in Kambia and Port Loko Districts" was determined based on the opinions of the Project's

⁷ The initial cooperation period before the extension was conducted by JICA directly contracting experts.

⁸ The summary of the 2017 terminal evaluation is provided. Two terminal evaluations were conducted for the Project: the first in 2014 (terminal evaluation of the initial cooperation period before the Ebola outbreak) and the second in 2017 (terminal evaluation of the extension period).

implementation status from KDC and PLDC and by comparing the budget and its expenditure data. Note that, at the time of the terminal evaluation survey (November-December 2017), the PDM covered only KDC and PLDC, and no indicators were set for the remaining three districts (BDC, TDC, and KoinDC).⁹

1.3.2 Achievement Status of Overall Goal at the Terminal Evaluation (Including other impacts.)

The Overall Goal was considered difficult to achieve unless the MLGRD had the necessary budget and human resources to implement the dissemination of the Guidelines. It should be noted that, at the time of the terminal evaluation, the dissemination of the Guidelines to all districts of Sierra Leone was stated on the PDM.¹⁰

Positive impacts other than the Overall Goal were identified according to the health, education, and agricultural facilities constructed under the Ebola Recovery Pilot Projects. No negative impacts were identified.

1.3.3 Recommendations from the Terminal Evaluation

In addition to the revision of the PDM (extension of the cooperation period, changes to the Overall Goal and its indicator, and addition of indicators for Output 4), the following recommendations were made to the MLGRD, LCs, and the Project:

(1) For the MLGRD,

- To integrate the Guidelines as a working document into the amended LGA 2004 soon after the election
- To formulate a more detailed plan for the Guidelines' dissemination, including budget and human resources allocation
- To disseminate the Guidelines to donors and other MDAs

(2) For LCs.

- To ensure a budget for monitoring and evaluation/O&M and to strengthen their activities
- To share lessons learned about development activities among LC staff
- To report good practices of their development activities to the central government

⁹ Indicators for the three districts were added in February 2018 based on the results of the terminal evaluation (source: documents provided by JICA).

¹⁰ During the terminal evaluation, it was proposed to change the scope of the Overall Goal from the entire country (all districts) to the Eastern Region and the Southern Region (at least one district each), which was agreed upon in discussions with the counterpart of the Sierra Leone side (Source: Terminal Evaluation Report, 2018,p.24).

(3) For the Project

- To facilitate the MLGRD in order to disseminate the Guidelines to donors and other MDAs

2 Outline of the Evaluation Study

2.1 External Evaluator

Sachiko Matsumoto, FASID

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: December, 2021-March, 2023

Duration of the Field Study: April 23-May 10, 2022, September 17-September 24, 2022

3 Results of the Evaluation (Overall Rating: B¹¹)

3.1 Relevance/Coherence (Rating: ③¹²)

3.1.1 Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Sierra Leone

At the time of the ex-ante evaluation, the Local Government Act (2004) was recognized as the legal basis for the promotion of decentralization and functions, the implementation structure of LCs and WCs, and community participatory development. The *Poverty Reduction Strategy Paper (PRSP II (2008-2012), An Agenda for Economic and Social Empowerment*, identified the strengthening of local government as a key common challenge in addressing the strategic priority areas.

At the time of the Project's completion, the *2013-2018 Poverty Reduction Strategy Paper (PRSP III (2013-2018), The Agenda for Prosperity)* focused on strengthening local governance in promoting decentralization.

For the above reasons, the Project's direction to promote decentralization in line with the *Local Government Act (2004)* is consistent with the decentralization and development policies of the Government of Sierra Leone from the time of the Project's planning to its completion.

3.1.1.2 Consistency with the Development Needs of Sierra Leone

At the time of the ex-ante evaluation, Kambia District in the Northern Region was particularly damaged by the civil war and was underdeveloped. The development of areas bordering Kambia in Port Loko District were also seriously delayed. In addition, the

¹¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

¹² ④: Very High ③: High, ②: Moderately Low, ①: Low

limited capacity of LCs and WCs to properly plan and coordinate with MDAs caused problems in the delivery of basic services and the improvement to the social infrastructure.¹³

Regarding the Ebola outbreak during the Project's implementation, the number of infected persons was 164 in Kambia District and 1,368 in Port Loko District, with Port Loko District presenting the second-highest number of infected persons in the country.¹⁴ During the Ebola outbreak (2014-2015), emergency responses were utilized through a centralized system, and essential services were prioritized. The central government agencies and various donors directly supported communities using their own criteria, which weakened the decentralized system and structures established before the Ebola outbreak, making it difficult to promote consistent local governance. After the end of the Ebola outbreak, decentralization was promoted again, and the need for community development in line with the Local Government Act increased. The Project's target districts suffered significant damage to their livelihoods due to the stagnation of economic activities caused by Ebola, and there was a growing demand for community development such as infrastructure improvements.¹⁵

From the time of the Project's planning to the period of its completion, except for the emergency period resulting from the Ebola outbreak, the Project's objective of community development through collaboration with LCs and communities is highly consistent with Sierra Leone's development needs.

3.1.1.3 Appropriateness of the Project Plan and Approach

The Project actively promoted the participation of women, youth, and people who cannot read through various opportunities, such as basic studies of the target areas, selection of Pilot Projects, and collaborative activities with residents. Furthermore, the Project took care to ensure equity of benefits so that interventions would not be biased toward any social categories.

The Project had decided on a policy of considering effective measures in stages, based on the results of various surveys after the start of the Project.¹⁶ The main reason for this approach was that the political situation in Sierra Leone prior to the Project was highly uncertain and basic data on the target areas were lacking. The PDM was revised frequently during the implementation period.¹⁷ The main reason for those revisions were the clarification and concretization of objectives and the re-setting of indicators. These

¹³ Source: Ex-ante Evaluation Sheet p.1-2.

¹⁴ As of February 2015 (Source: Documents provided by JICA).

¹⁵ Source: Project Final Report (2019) p.1-6.

¹⁶ The Detailed Planning Survey p.13.

¹⁷ The PDM was changed 7 times during the Project implementation (November 2009-February 2019) (Source: Documents provided by JICA).

changes to the PDM were made appropriately through consultation and agreement with the counterpart agencies, in response to the results of basic surveys in the target areas and the Project's activity monitoring, as well as changes in the environment surrounding the Project due to the Ebola outbreak. However, the PDM's Project Purpose remained vague, and the indicators for the Project Purpose were used without providing measurable criteria. In addition, the Project Purpose and some of the Outputs did not show the appropriate logical relationship. Therefore, in line with the latest version of the PDM, there were some difficulties in evaluating the Project. In the ex-post evaluation, the indicators of the Project Purpose and some of the Outputs and their indicators were reorganized in order to determine the objectives' achievement level.

As for the Overall Goal, the planned target was not achieved. Mainly, the target could not be achieved due to the inability to secure budget and human resources for the achievement of the Overall Goal, and this was due to the change of government near the end of the Project. On the other hand, the plan included the Output that contributed to the nationwide dissemination of the Guidelines necessary for achieving the Overall Goal, and there were no serious problems with the Project Plan or Approach.

3.1.2 Coherence (Rating:③)

3.1.2.1 Consistency with Japan's Official Development Assistance (ODA) Policy

In the policy dialogues between the Governments of Japan and Sierra Leone held in May 2005, the establishment of peace and rural development were identified as priority issues for assistance, and Freetown and Kambia District, which was severely affected by the civil war, were selected as priority geographical areas. In addition, the priority area of ODA to Sierra Leone, "Local and Rural Development," included the effective combination of assistance for improving the basic living environment in rural areas, supporting infrastructure development that contributes to agricultural development and technical assistance for human resource development that contributes to sustainable development.¹⁸ In JICA's project implementation plan at the time of the ex-ante evaluation, this Project was introduced as a part of the "Kambia District Regional Development Assistance Program."¹⁹

From the above, the objectives of the Project were consistent with Japan's development cooperation policy.

¹⁸ Source: Ministry of Foreign Affairs of Japan. "[19] Sierra Leone". Country Databook. 2009. https://www.mofa.go.jp/mofaj/gaiko/oda/shiryo/kuni/09_databook/pdfs/05-19.pdf (cited 2023-02-24) .

¹⁹ "Kambia-ken chiiki kaihatu shien program" was translated by the evaluator.

3.1.2.2 Internal Coherence

Since this Project has LCs as the counterparts, it was expected from the time of the ex-ante evaluation that it would “serve as the core Project of the cooperation program”²⁰ in the districts, and it was envisioned that it would collaborate with other projects in various ways. During the Project’s implementation, MDAs and LCs collaborated in facility design, procurement, and so on for the JICA health sector project, “Project for Strengthening Supportive Supervision System” (2013-2018), and the agricultural sector project, “Sustainable Rice Production Project” (2017-2022), which were implemented in the Northern Region during the same period. In the Pilot Project, a health center staff dormitory was constructed next to a village clinic that was renovated by the JICA health sector project, “The Project for Strengthening District Health Management in Kambia District” (2008-2011). Since the village is the most remote location in Kambia District from the district capital, the new dormitory enabled nurses to be stationed in the village, contributing to the improvement of health services in the area, such as emergency response 24 hours a day.

From the above, various forms of collaboration and synergy with other JICA projects were confirmed.

3.1.2.3 External Coherence

At the same time as the Project, international donors such as the World Bank, UNDP, and the Commonwealth were supporting the MLGRD to promote decentralization in Sierra Leone, and it was expected to operate in coordination with the Project from its inception.²¹ The project participated in regular meetings at the Ministry and actively shared information with other donors and avoided duplication of technical assistance. In 2011, the task force meetings on regional development policy formulation by the MLGRD (including donors) were held on a regular basis. At the request of the Minister, the Project’s long-term expert (Chief Advisor) participated as a key member and held policy discussions for more than six months. However, the policy was not ultimately approved by the Parliament and was not enacted, so synergies did not emerge. On the other hand, DECSEC officers, in support of the World Bank project, participated in the Project as the official members of the Guideline revision team, and they played an important role in the editing and synthesis of the Guidelines.²²

From the above, the collaboration and coordination initially envisioned with

²⁰ The Detailed Planning Survey p.16.

²¹ Source: Ex-ante Evaluation Sheet p.6-7.

²² Prior to the Ebola outbreak, two handbooks had been prepared: the District Development Handbook and the Rural Development Handbook. After the extension, they were edited and consolidated into one more practical guideline, improving the dissemination potential of the Guidelines.

interventions of other donors were achieved, and concrete results were achieved in the formulation of the Guidelines that are practical and easy to disseminate through collaborative work.

The Project was consistent with the development plans and needs of the Government of Sierra Leone. It was also in line with the Japanese government's policy of assistance to Sierra Leone at the time of the ex-ante evaluation. In addition, the Project was implemented in collaboration with JICA's other sector projects, along with other donors promoting decentralization, which had been expected from the outset, and concrete results were confirmed. Therefore, its relevance and coherence are high.

3.2 Effectiveness and Impacts²³ (Rating: ②)

3.2.1 Effectiveness

3.2.1.1 Achievement of Project Purpose

As mentioned in the appropriateness of the Project Plan and Approach, the latest version of the PDM has some challenges,²⁴ and it was difficult to evaluate the Project using only the Project Purpose indicators. Therefore, in the ex-post evaluation, the Capacity Assessment results conducted by the Project and one of the indicators from Output 2 were added to the Project Purpose indicators in determining the Project Purpose's degree of achievement. The Project Purpose indicator for the three additional districts, "Officers in 3 districts (Bombali, Koinadugu, Tonkolili) in the Northern Region understand the concept of the Guideline," was retained.

Capacity Assessment data used for an additional indicator were collected for two District Councils, KDC and PLDC, in 2016 and 2017, and for three District Councils, BDC, TDC, and KoinDC, in 2018.²⁵ The survey included Core Capacity (management and leadership skills) and Technical Capacity (six categories according to the Guidelines).²⁶ Of these, Technical Capacity was used as an indicator because it is consistent with the Project Purpose.

Another additional indicator is the "Good Practices of District Council and Ward

²³ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

²⁴ Project Purpose "(...) systems and functions will be strengthened" is ambiguous as it can be interpreted differently (e.g., whether it is about improving mechanisms and procedures or about improving service delivery). Furthermore, of the two Project Purpose indicators, "By the end of the Project, service delivery of District Councils and WCs based on the structure and function indicated in the District/Rural Development Handbook is provided in Kambia and Port Loko Districts" does not provide specific targets for the measurement of indicators or achievement level criteria.

²⁵ Capacity Assessments were also conducted during the initial cooperation period, but the survey contents have changed, so it is not possible to compare Capacity Assessment results from before 2014 and after 2016.

²⁶ The six categories are "Formulation/Review of DDP/AWP," "Project Implementation," "Project Management," "Operation & Maintenance," "Evaluation/Finance," and "Coordination." Source: Final Report (2019), p.7-6 to 7-14.

Committee” under Output 2, “Capacities of District Councils, and Ward Committees in Kambia and Port Loko Districts are developed for more effective and efficient District/Rural Development Management.” This indicator was chosen to be used as a qualitative indicator of the Project Purpose because carrying out community development projects in accordance with the Guidelines (i.e., good practices) is the utilization of counterparts’ acquired knowledge and skills, which is the Project Purpose level, rather than the acquisition itself.

Table 1 Achievement of Project Purpose

Project Purpose	Indicator	Actual
Strengthen the structure and function of District Councils and WCs to manage district/rural development more effectively and efficiently in Kambia and Port Loko Districts and other 3 districts (Bombali, Koinadugu, Tonkolili) in the Northern Region.	① Technical capacity results of Capacity Assessments for the five target district councils are improved	Technical Capacity of KDC and PLDC in March 2017 had changed positively in all six categories compared to June 2016. For the three additional districts (BDC, TDC, and KoinDC), changes were not captured because there were no data as of 2016 to compare. However, they did not deviate significantly from the result of KDC and PLDC in 2017 (Figure 1).
	② Good practices of District Council and Ward Committee	Using the Capacity Assessment categories, the work performance of KDC and PLDC officials were interviewed, and good practices were identified for 1) Formulation (excluding DDP formulation), 2) facility design, and 3) monitoring activities.
	③ Officers in 3 districts (Bombali, Koinadugu, Tonkolili) in the Northern Region understand the concept of the Guideline	District Council officials from the three target districts made presentations and exchanged opinions at the forum on their achievements in implementing Pilot Projects in line with the Guidelines.

Sources: First terminal evaluation report (2017) p.12-13; Second terminal evaluation report (2018) p.10-12; Final Report (2019) p.3-20 to 3-21, 4-31 to 4-33, 7-11.

A comparison of the 2016 and 2017 Capacity Assessment results shows that KDC and PLDC Technical Capacity changed positively in all six categories (See Figure 1 on p.13). Of these, “Project Management” and “Coordination” had the greatest degree of improvement, whereas “Formulation and Review” and “Evaluation” had the least degree of improvement.²⁷ The reason for the low level of “Evaluation” was that “Evaluation,” as the final step of the on-the-job training (OJT) for strengthening the practical capacities of LCs (Outcome 4), could not be implemented due to the Project’s time constraints²⁸ (see Appendix 1 for the achievement status of the four Outputs of the Project).

²⁷ The reason for the lowest degree of improvement in “Formulation and Review” was that no Ward Development Plan was formulated and submitted. However, the formulation of the Ward Development Plan is excluded from the scope of Project Purpose because it is not mentioned in the Guidelines and therefore was not the subject of the Project.

²⁸ Source: Final Report p.7-18.

In the good practices of District Councils and WCs, Indicator 2, the close collaboration between the District Councils and WCs resulted in the formulation and monitoring of development projects with the community's participation and the design of facilities in accordance with the standards, which were confirmed as example practices of service delivery in line with the Guidelines.

Indicator 3 aimed at understanding the concept of the Guidelines for the three additional District Councils during the extension period, with the intention of reducing the level of difficulty compared to the original two councils. Because the officers in the three target District Councils had implemented Pilot Projects using the Guidelines, presented their experiences at the forum, and exchanged opinions, it has been considered that the concepts of the Guidelines were mostly understood.

From the above, although the criteria for achieving the Project Purpose were not clearly defined, it has been determined that the Project mostly achieved its purpose because the work performance in the work categories in line with the Guidelines has improved.

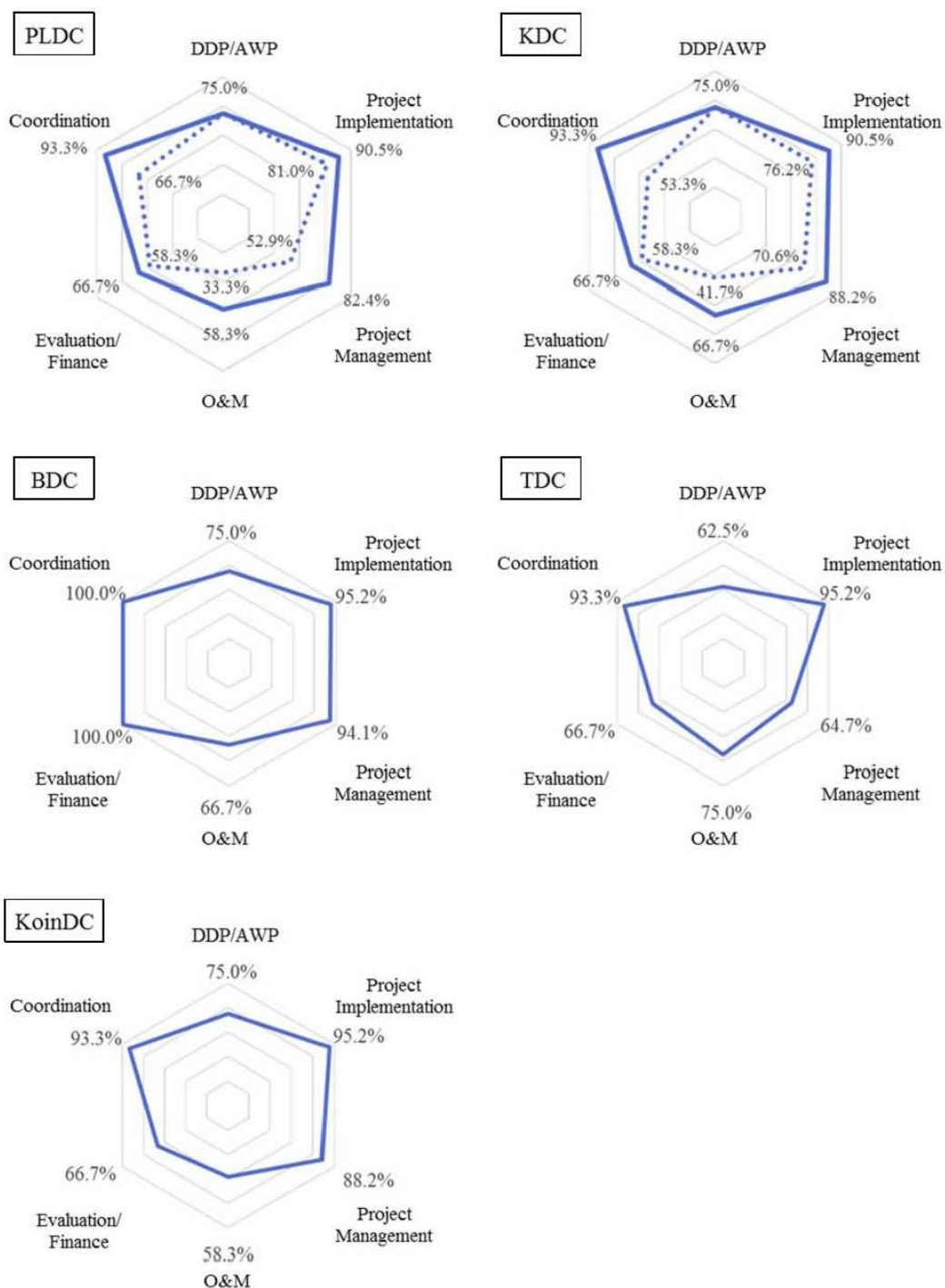


Figure 1. The Results of Capacity Assessment (Technical Capacity)²⁹

Source: 'Figure 7.3.1 Balance of capacity of the five district councils to deliver development projects' from the Final Report (2019) p.7-13.

Note: For KDC and PLDC, the dotted lines are the results as at June 2016; the solid lines are at March 2017. For BDC, TDC, KoinDC, their results as at June 2018. 'DDP/AWP' is the 'District Development Plan/ Annual Work Plan'.

²⁹ The capacity assessment was conducted by interviewing prefecture council officials (Chief Administrator, Deputy Chief Administrator, Human Resources Officer, Finance Officer, Development Planning Officer, Monitoring and Evaluation Officer, Engineer, and Procurement Officer) from the five target districts using the Capacity Assessment Checklist. It was conducted by Japanese experts and locally hired program officers during the extension period (Source: Final Report, p.7-7).

3.2.2 Impacts

3.2.2.1 Achievement of Overall Goal

The Project’s Overall Goal, “LCs’ development operations are improved in the Eastern and Southern Regions in addition to the Northern Region,” aimed to disseminate the demonstrated model (the mechanisms and procedures outlined in the Guidelines) outside the target area. In particular, Output 3 (establishment of a national dissemination system) was included in the Project Plan to directly promote the achievement of the Overall Goal. However, the change of government near the end of the Project caused changes in the personnel and structure within MLGRD. As a result, the dissemination plan established under the Project was not carried over, and no budget or human resources were secured for dissemination, so activities to disseminate the Guidelines outside the Project target area were not implemented.³⁰ In 2019, after the completion of the Project, JICA sent a study team to determine a successor Project, “The Project for Capacity Development to Strengthen Local Resilience in Sierra Leone,” for dissemination to the Eastern and Southern Regions.³¹ The successor Project was delayed to start due to the impact of the COVID-19 and is scheduled to be implemented for four years starting in June 2021.

The status of achievement of the Overall Goal target is shown below.

Table 2 Achievement of Overall Goal

Overall Goal	Indicator	Actual
LCs’ development operations are improved in the Eastern and Southern Regions in addition to the Northern Region	LC’s services were delivered in accordance with the Guidelines in at least one LCs in the Eastern and Southern Regions respectively, approximately 3 years after the end of the Project.	As the former counterparts of the Project were transferred to the Eastern and Southern Regions, some of their works in line with the Guidelines were carried out at the discretion of each individual. However, it was not a situation where this was being done as an organizational effort as the Overall Goal aimed for.

Source: interviews with Chief Administrators or deputies of LCs (city councils and district councils, four in total) in Bo (Eastern Region) and Kenema (Southern Region).

Although the successor Project was under implementation at the time of the ex-post evaluation, no effect on the Project's Overall Goal was observed because of the restriction of dissemination activities due to the COVID-19. Some officers in the LCs in the Eastern and Southern Regions were equipped with knowledge and skills of the

³⁰ Source: Interviews with officials of the implementing agencies.

³¹ Source: Materials provided by JICA.

Guidelines, as former counterparts of the Project had been transferred to these councils. However, no situation was identified in which the Guidelines were systematically introduced and utilized by LCs.

The Project has achieved its Overall Goal only to a limited extent because the Guidelines' dissemination activities were not implemented by the MLGRD after the Project's completion.

3.2.2.2 Status of Continued Project Effectiveness

Of the five target District Councils, only BDC continued to utilize the Guidelines developed by the Project (Table 3). At the time of the ex-post evaluation, 18 years had passed since the promulgation of the Local Government Act (2004), during which time the promotion of decentralization in Sierra Leone was the subject of many interventions by donor agencies such as the World Bank, UNDP, European Union (EU), and United Nations Children's Fund (UNICEF). As a result, at the time of the ex-post evaluation, compared to the time when the Project was launched (2009), the work was being carried out to some extent in accordance with the mechanisms and roles set out in the Local Government Act (i.e., the Guidelines), although there were differences in the degree of implementation among the councils. Therefore, it was difficult to determine the continued use of the Guidelines based solely on information about the status of each council's project implementations.

Based on these conditions, the criteria for determining the continued use of the Guidelines at the time of the ex-post evaluation are as follows: 1) each District Council is implementing development projects based on the Guidelines to a certain extent (e.g., holding community sensitization meetings, conducting development needs assessments with community participation, collaborating with MDAs, disclosing procurement information to the public); 2) multiple officers at each District Council are able to explain the Guidelines (usefulness of the Guidelines, etc.); and 3) the Guideline documents are stored in the office environment (readily available for reference) (Table 3).³²

³² It was considered to use the additional Project Purpose indicator, the Capacity Assessment Checklists, to check the status of continued effectiveness, but this was not done due to the complexity of the checklists (94 items in six categories) and the inaccessibility of the evidentiary documents.

Table 3: Continued Use of Guidelines in the Five District Councils

	KDC	PLDC	BDC	TDC	KoinDC
Conduct Operations in Accordance with the Guidelines	YES (In line with the LGA)	Somewhat (Different evaluation methods)	YES (In line with the LGA)	YES (In line with the LGA)	YES (In line with the LGA)
Understanding of the Guidelines	No	YES	YES	No	No
Guidelines' Accessibility at Office	No	No	YES	No	No
Status of Continued Use of Guidelines	No	No	YES	No	No

Source: Most recent *DDP* and *AWP* for the five District Councils. District Council officers' interviews. Interviews with Chief Administrator or Deputy Chief Administrator.

The District Councils had a low level of understanding of the Guidelines in the five target districts at the time of the ex-post evaluation because the former counterparts who worked on the Project had been transferred to other districts, and the MLGRD did not conduct any dissemination activities for the Guidelines after the Project's completion and did not provide technical guidance to the new officers in the Northern Region.

3.2.2.3 Other Positive and Negative Impacts

1) Impacts on the Natural Environment

This Project is classified as Category C³³ under the JICA Guidelines for Environmental and Social Considerations (2010). At the time of the ex-post evaluation, no negative impact on the natural environment was observed based on the interviews with facility maintenance organizations and community residents as well as site visits.³⁴

2) Resettlement and Land Acquisition

The newly acquired land for the Pilot Project's construction of facilities is either owned by the community or has been transferred to the facility maintenance organization under the agreement of the landowner, and no problems have occurred.³⁵

3) Gender Equality, Marginalized People, Social Systems and Norms, Human Well-being, and Human Rights

³³ Category C: Projects are likely to have minimal or little adverse impact on the environment and society (JICA Guidelines for Environmental and Social Considerations, 2010).

³⁴ In the first field visit, the evaluation team visited 20 facilities in the five target districts, interviewed 20 facility managers, and conducted group interviews with facility users and nearby residents (approximately 100 people, 70% of whom were male and 30% female).

³⁵ Source: Terminal Evaluation Report (2018) p52, p.64.

Several positive impacts from the facilities constructed in the Pilot Projects were identified. For example, the health facilities contribute to health promotion and safe childbirth opportunities for the residents, educational facilities (schools) provide learning opportunities and a hygienic and safe learning environment for children, wells provide safe drinking water for the communities, road facilities revitalize economic activities in the village, and rice-processing facilities shorten agricultural work. These positive impacts were confirmed from the stakeholders' interviews and the field visits.



Elementary School built by the pilot project (left, Port Loko) and Health Post (right, Kambia)
Source: Photo taken by the evaluator.

Because this Project has only achieved its Project Purpose and Overall Goal to a certain extent, the Project's effectiveness and impacts are moderately low.

For the Project Purpose, it is mostly achieved since targeted District Councils and WCs were able to operate community development projects in accordance with the Guidelines. However, with regard to the Overall Goal, due to the fact that post-completion Guideline dissemination activities were not carried out by the MLGRD, it was not possible to determine that local development projects were being implemented in accordance with the Guidelines in the LCs of the Eastern and Southern Regions, in addition to the Northern Region.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

A comparison of planned and actual Inputs by the type of input is shown in the table below.

Table 4 Plan and Actual Inputs

Type of Input	Plan	Actual
(1) Experts	(Initial cooperation period) 379 million yen (Long /short term and MM* are not stated) (Extension period) 39.4 MM	(Initial cooperation period) • Long-term experts: 5 • Short-term experts: 11 (Extension period: January-April 2016) • Japanese experts: 5 (Extension period: April 2016 onwards) Japanese experts: 9 (46.1 MM)
(2) Trainees received	(Initial cooperation period) No number of people listed (Extension period) No information	(Initial cooperation period) 20 participants (group/Project-specific training) (Extended period) 12 participants (Training in Japan)
(3) Third- country training	(Initial cooperation period) unscheduled	(Initial cooperation period) 13 participants (Uganda, Ghana)
(4) Equipment	(Initial cooperation period) unscheduled (Extension period) No information	(Initial cooperation period) Vehicles, audiovisual equipment for training, office equipment, heavy machinery, etc. Approx. 36.54 million yen (Extension period) Office equipment, etc. Approx. 2 million yen
(5) Expenses for project activities, and pilot projects	(Initial cooperation period) 418 million yen (Extension period) No information	(Initial cooperation period) Approximately 193.81 million yen (Extension: from January 2016 to end of October 2017) Approx. 49.3 million yen
Japanese Side Total Project Cost	Total 1,156 million yen.	Total 1,305 million yen
Sierra Leone Side Total Project Cost	No amount stated (Counterparts personnel costs, provision of land and facilities, and costs of implementing community development projects)	No information on the amount (68 counterparts in total, 4 Project offices and furniture, equipment, electricity and water expenses, travel expenses for counterparts, meeting expenses, and partial payment of fuel for vehicles)

Source: Ex-ante Evaluation Sheet for the initial cooperation period of the plan and the Terminal Evaluation Report for the extension period. The initial cooperation period for the actual results is the First Terminal Evaluation Report (2017) conducted in 2014 and the extension period is the Second Terminal Evaluation Report (2018) conducted in 2017. The planned and actual total project costs for the Japanese side are from the data provided by JICA.

* MM stands for man month.

Note: The breakdown of the total project cost plan for the Japanese side is 797 million yen for the initial cooperation period and 359 million yen for the extension period.

3.3.1.1 Elements of Inputs

Japanese Experts were dispatched with the intention of creating a virtuous cycle

of policy institutional support to promote decentralization at the central level and field demonstration at the local level, with a Chief Advisor (long-term expert) assigned to the central government and technical experts (short-term expert) assigned to the District Council offices. As a result, the knowledge of practices from the Pilot Projects at the local level was utilized in policy discussions and institutional development at the Ministry. These activities also helped to build trust with the senior management of the MLGRD, including the Minister and Deputy Minister. However, during the extension period after the resumption due to the Ebola outbreak, Japanese experts could not be stationed at the central level due to budgetary constraints and the scale of work of the Ebola recovery Pilot Project. As a result, activities related to the Ministry and sector coordination at the central level were limited.³⁶ Regarding the cost of Project activities, the Project emphasized fostering ownership by counterparts and sustainability of activities and limited the payment of daily allowances to counterparts to a minimum. As a result, active participation in the Project was sometimes hampered by the activities of other donors who paid a daily allowance.³⁷

Although the Inputs on the Sierra Leone side were largely carried out as planned, personnel absences occurred among District Councils' officers due to frequent personnel changes and the handling of other donor projects.³⁸ WCs and local traditional leaders contributed to avoiding problems and resolving issues with residents in implementing the Pilot Projects.³⁹

3.3.1.2 Project Cost

The planned amount of the Project cost on the Japanese side increased due to the additional Outputs of the Ebola recovery after the resumption of the Project. The planned amount, 1,156 million yen, which includes the increased amount for the extended period, against the actual amount, 1,350 million yen, slightly exceeded the plan (113%). The initial cooperation period was 120% of the plan, and the extension period was 91% of the plan. The reason why the amount exceeded the plan in the initial cooperation period could not be confirmed due to the lack of records at that time.⁴⁰

3.3.1.3 Project Period

The Project period was temporarily suspended due to the Ebola outbreak and then

³⁶ Source: Interview with the former Japanese expert.

³⁷ Source: Interview with former counterpart. It should be noted that while the salaries of civil servants in the Sierra Leonean government are very low, the government highly expects donor to pay allowances.

³⁸ Source: Final Report, p.7-14.

³⁹ Source: Terminal Evaluation Report (2018) p.21, Interview with former WC members and facility managers/users.

⁴⁰ Several former Japanese experts were interviewed but nobody could identify any event or the expenditure items which could directly relate to the exceeded amount.

extended until July 2018 due to additional Output related to Ebola recovery. The Project period at the time of resumption (April 2016) was planned (November 2009 to July 2018), and the actual results were from November 2009 to February 2019, which slightly exceeded the plan (107%). The reason for this was due to the delay in the completion of the facility construction due to the lack of management of the contractor for the Ebola recovery Pilot Project.

Therefore, efficiency of the Project is high.

3.4 Sustainability (Rating: ③)

3.4.1 Policy and System

Sierra Leone's Medium-Term National Development Plan 2019-2023, in strengthening decentralization, local governance, and regional development, has as its strategic objectives strengthening the capacity of LCs to deliver services and building local governance with a strong and comprehensive coordination and collaboration mechanism. One of the three key targets (indicators) for specific achievement goals is "By 2023, operationalize the Guidelines in all 22 local councils," which specifies the use of the Project's Guidelines.⁴¹

The Decentralization Policy (2021)⁴² also declares LCs as the highest sociopolitical and development authority in the locality and specifies that they are responsible for public service delivery, local economic development, protecting the welfare of the population, and taking an inclusive and participatory approach to development.⁴³

From the above, it has been determined that the sustainability of the Project's policy aspects to keep its positive effects is high.

3.4.2 Institutional/Organizational Aspect

The new government has brought about significant personnel changes in the MLGRD as well as in the restructuring of ministries involved in rural development. The Rural Development Directorate (RDD), formerly under the MLGRD, is now under the newly established Ministry of Planning & Economic Development (MoPED).⁴⁴ However, the officials of RDD under MoPED recognize the usefulness of the Guidelines and welcome the collaboration with the MLGRD for the Guidelines' dissemination.⁴⁵

The implementation system for Guideline dissemination did not function after the

⁴¹ Source: Sierra Leone's Medium-Term National Development Plan 2019-2023, p.130-132.

⁴² The Decentralization Policy (2010) was formally revised with Cabinet approval in July 2021.

⁴³ Source: National Decentralization Policy (July 2021), p.36.

⁴⁴ MoPED aims to promote the formulation of strategies and the coordination of national development policies for effective and sustainable socioeconomic development; under MoPED, the RDDs have a mandate to improve regional development policies/plans and coordinate relevant local development agencies (Source: MoPED website and interviews with MoPED RDD officials).

⁴⁵ Source: Interviews of MLGRD and MoPED officers.

Project was completed, and no dissemination activities were conducted. However, the successor Project has now launched the Guidelines Advisory Team (GAT) as a new dissemination system, and GAT members have started training trainers to teach the Guidelines in each LC.⁴⁶

From the above, it has been determined that the new Guideline dissemination system is being established through the support of successor Projects and that the sustainability of the organizational aspect is high.

3.4.3 Technical Aspect

In the five target District Councils, the BDC, TDC, and KoinDC had former counterparts and maintained the knowledge and skills to implement development projects using the Guidelines. However, many former counterparts had moved to other districts; therefore, new officials rarely inherited those knowledge and skills.⁴⁷ Furthermore, in case where the Chief Administrators of LCs were not former counterparts, their understanding of the usefulness of the Guidelines was limited, and they were less interested in actively using them. However, because the former counterparts are now serving in LCs in other districts and are recognized as GAT members as mentioned above, their knowledge and skills in Guideline dissemination and Guideline revision work will be maintained.

Skills in the maintenance of facilities and provided equipment in the pilot project were maintained by the maintenance manager and maintenance committee⁴⁸.

From the above, the technique of continuing the Project's effectiveness was maintained with the support of the successor Project. However, there was a lack of understanding of the Guidelines among the newly appointed Chief Administrator and LC officials, which presented somewhat of a challenge.

3.4.4 Financial Aspect

The MLGRD's budget for Guideline dissemination activities has not been secured. There are no plans to budget for dissemination during the term of the successor Project (until 2025). The MLGRD will consider allocating the necessary budget for the dissemination of the Guidelines when the successor Project comes to an end, based on the status of the dissemination of the Guidelines.

⁴⁶ The GAT is composed of three teams: the Central, Southern, and Eastern regions. Central members include MLGRD and MoPED officials. The South and Eastern regions have about seven members each, mostly former counterparts (as of April 2022). Source: Documents provided by the successor Project. Interviews with Japanese experts and GAT members in the successor Project.

⁴⁷ However, more than two former counterparts are working in BDC, and technical advice is being provided to new staff.

⁴⁸ Source: interviews with maintenance committee members and community residents of 20 facilities of five districts and site visits.

It was envisaged that the LCs' budget for carrying out development projects in line with the Guidelines would be secured from either government funds or their own resources. In the budget plan of the annual work plan of the five target districts, each District Council had a certain amount of budget for community visits and development project monitoring activities (daily allowance, travel expenses, fuel, motorcycle/vehicle maintenance, etc.). In addition, some budgets for community sensitizations, needs assessments, and joint monitoring activities with MDAs were also allocated, although they varied by each council.⁴⁹

Table 5: Portions of the budgets of the five target district councils and WCs for 2020 and 2021

(Unit: million SLL)

Council	KDC		PLDC		BDC		TDC		KoinDC	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
fiscal year	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Grant for WC	124	136	151	170	113	127	156	176	N/A	109
Administrative expenses (unconditional grants) ⁵⁰	379	414	454	442	178	78	1,067	329	N/A	227
Own revenue	734	808	1,533	1,653	1,182	1,071	2,063	2,063	N/A	1,542

Source: KDC Budget 2020-2022, PLDC MTEF Budget 2020-2022/ 2021-2023, BDC MTEF Budget 2020-2022/ 2021-2023, TDC Budget for FY 2020/ FY 2021, KoinDC MTEF Budget 2021-2023.

However, because government grants are frequently late or not paid as budgeted⁵¹ and it is difficult to collect taxes from District Councils' own revenue,⁵² some said that there was limited budget for activities that was in line with the Guidelines.⁵³ Furthermore, opinions were divided on how strictly to implement the activities outlined in the Guidelines, and there was no unified view on the minimum budgetary requirements.⁵⁴

The above shows that there are financial sustainability issues at both the central and local levels. However, there is a prospect for improvement because the dissemination activities will be carried out until 2025 by the successor Project, and the work to revise the

⁴⁹ Source: DDP and AWP in the five target districts; interviews with district council officials.

⁵⁰ A portion of the government's Unconditional Block Grant can be spent on operational and administrative costs at the discretion of the LC. Resident briefing and monitoring activities are paid for from the grant or own revenue (Interview by the district council officials).

⁵¹ Source: Reviewed Tonkolili District Council Development Plan (2021-2022), Port Loko District Council MTEF Budget 2020-2022FY.

⁵² Actual performance against District Councils' own revenue budget for the first half of FY2021 is KDC 49%, PLDC 31%, BDC 52%, TDC 53%, and KoinDC 94%. Source: Public Financial Management Reform Report Semi Annual 2021, Ministry of Finance.

⁵³ Source: interviews with district council officials.

⁵⁴ Source: interviews with former counterparts and District Council officials. It should be noted that work is underway to revise the Guidelines in the successor Project and that the scope of activities in the Guidelines is being reconsidered.

Guidelines is underway.

3.4.5 Environmental and Social Aspect

Through the Pilot Project, the participation of women and youth was confirmed.⁵⁵ Based on the document review and the results of interviews from LC's officials, facility maintenance organizations and community residents as well as site visits during the ex-post evaluation, no negative environmental and social impacts were identified from the time of planning to the time of the ex-post evaluation.

3.4.6 Preventative Measures to Risks

Although there was a change in structure at the central level with the new government (RDD moved under MoPED), relationships are established that allow for collaboration and dissemination of the Guidelines under the new structure. In addition, although the LCs and WCs are not functioning well during the election period, the communities have the mechanisms and skills to continue the facilities' maintenance.

With regard to collaboration with other donors, the coordination meeting to support local administration at the central level, which was proposed at the completion of the Project, has not been held. Specific collaboration with other donors has not progressed, and the uncertainties regarding the donors' use of the Guidelines have not been adequately addressed.

3.4.7 Status of Operation and Maintenance

It has been confirmed that the facilities constructed by the Pilot Projects are organized by the facility maintenance committees or the management representatives composed of facility personnel and facility users. Also, the daily and periodic maintenances of the facilities are being carried out.⁵⁶ Eighty percent (16 facilities) of the 20 facilities that were visited during the ex-post evaluation were used in good condition.⁵⁷

Slight issues have been observed in the technical, financial, and preventative measures to risks; however, there are good prospects for improvement through the successor Project's work. Therefore, sustainability of the Project effects is high.

⁵⁵ Sources: Final Reports p.4-19, 4-21, A-219; interviews with former counterparts.

⁵⁶ Source: Visits to 20 facilities in five target districts, on-site inspections, and interviews with facility management/users.

⁵⁷ Four facilities had issues regarding deterioration of their facilities and malfunction of their equipment and left without being repaired.

Box. Operation and Maintenance through Community Participation

The “District/Rural Development Model” under this Project was excellent for the maintenance and management of facilities through community collaboration. Specifically, user groups responsible for maintenance and management were identified prior to the facility construction, the construction status was monitored with community residents during the construction, and when the facility was handed over after completion, the user groups were instructed on the techniques and provided with simple tools for facility maintenance and management. Through these activities, residents’ ownership of the facility was fostered.

As a result, the pump well, built 10 years ago (2012), was still maintained on a daily and regular basis solely by the residents. Although many wells in rural Sierra Leone have been broken and abandoned or have dried up due to inappropriate construction work, the residents were proud of the fact that they could maintain and manage their own wells by themselves. This is an example of sustainable development by the community, which was the goal of this Project.



A pump well maintained by the residents (left, Robombeh Village, Kambia District). Maintenance tools provided under the Project (right, Sendugu Village, Kambia District)

4 Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This Project was undertaken in the Northern Region of Sierra Leone with the aim of enabling LCs and WCs in order to carry out their functions and roles in accordance with the Local Government Act (2004) and to manage district development projects efficiently and effectively.

The objectives of the Project are consistent with the decentralization and development policies of the Government of Sierra Leone and are consistent with development needs, except during the EVD outbreak. The objectives of the Project are also consistent with Japan’s development cooperation policy toward Sierra Leone, and the collaboration between LCs and MDAs was facilitated through JICA’s health and agriculture projects in the region. In collaboration with other donors, the Project worked to revise the Guidelines to make them more practical and suitable for dissemination. Therefore, the Project’s relevance and coherence are high. The Project mostly achieved its purpose at its completion, as the targeted

District Councils and WCs in the Northern Region were able to manage community development programs by ensuring that the structure and roles were in line with the Guidelines. However, at the time of the ex-post evaluation, the LCs in the Eastern and Southern Regions had not managed development projects using the Guidelines; thus, the Overall Goal has not been achieved. In addition, the Northern Region has had little lasting effect on the Project due to the transfer of former counterparts. Therefore, the effectiveness and impacts are moderately low. The Project period and Project cost slightly exceeded the plan but not by a large margin. Therefore, the Project's efficiency is high. In terms of sustainability, there is a strong political will in which the operationalization of the Guidelines at the national level is specified in the *Sierra Leone's Medium-Term National Development Plan (2019-2023)*. On the other hand, there are technical and financial challenges in the dissemination and utilization of the Guidelines. However, there is a prospect of improvement and resolution thanks to the successor Project, which will continue until 2025. Therefore, the Project's sustainability of effects is high.

In light of the above, this Project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the MLGRD

- Reinforcement of awareness-raising activities for dissemination of the Guidelines

To ensure that each officer in the LCs implements development projects in accordance with the Guidelines, it is important for the Chief Administrator to fully understand the usefulness of the Guidelines and provide leadership in putting them into practice. However, due to the frequent transfers and changes of the LC officers, some Chief Administrators have no experience engaging in the Project and are not aware of the benefits of the Guidelines. Therefore, the MLGRD should provide an opportunity to all Chief Administrators so that they understand the usefulness of the Guidelines. Because the financial situation of the LCs may hamper their activities, it is also desirable to inform the Ministry of Finance's decentralized departments about the Guidelines' contents to avoid difficulties in allocating budgets. This recommendation should be implemented once the revision of the Guidelines, undertaken by the successor Project, is completed.

- Facilitate donor coordination with the RDD of MoPED

At the time of ex-post evaluation, several foreign donor agencies are working with local development actors in the area of local governance. In addition to avoiding duplication of interventions, it is desirable to identify synergies in resource optimization and interventions and to have a regular forum for consultation to achieve these. It should be noted that the MoPED's RDD is currently responsible for coordination related to local

governance, mainly through the District Development Coordination Committee (DDCC). The MLGRD should have the opportunity to deliberate with the RDD as soon as possible on the promotion of donor coordination through the DDCC framework.

4.2.2 Recommendations to JICA

- Supporting the facilitation of donor coordination

JICA should encourage the MLGRD and MoPED to promote use of the Guidelines in all development projects involving LCs. For example, it is advisable to encourage other donors to raise their interest by presenting examples of the use of the Guidelines within other donor projects (e.g., EU Project⁵⁸) at coordination meetings held by the MLGRD and MoPED.

4.3 Lessons Learned

Involvement of community representatives in promoting community participation

The Project started in a situation where the LCs had little experience in leading community development projects. Therefore, the WC, headed by a councilor elected by the residents, was asked to act as a bridge between the community and the LC, especially at the beginning of the Project. The fact that the LCs sought advice from traditional leaders (e.g., Paramount Chiefs) also helped them avoid problems with residents and resolve issues during implementation. Therefore, if counterparts have no experience in community-involved projects, it is important to identify stakeholders representing the community at an early stage in order to gain the trust and understanding of residents and to involve them in project activities to an appropriate degree and in an appropriate manner, especially in the first half of a project, after understanding their level of influence and importance.

Effects of long-term placement of a Japanese expert in central government

Although the Project was intended to strengthen the capacity of local government agencies in the targeted areas, it was also intended to disseminate the effects throughout Sierra Leone as the Overall Goal. Therefore, the plan was to deploy experts in the central government, which was the lesson learned from the similar project in the past.⁵⁹ In line with the plan, a Chief Advisor was assigned to the MLGRD for the initial cooperation period (2009-2014). The effect has been significant, allowing the Project to provide advice as a key member in the formulation of policies and mechanisms for promoting decentralization, facilitating the implementation of local projects from the central level, and easily identifying and consulting

⁵⁸ The EU is currently implementing the Project “Support to Civil Society and Local Authorities for Local Development in Sierra Leone” to support civil society and local government for rural development in Sierra Leone in the districts of Bombali, Falaba, Kambia, Karene, Kenema, and Pujehun.

⁵⁹ Ex-ante Evaluation Sheet p.9.

with other donors who support the Ministry. In particular, JICA's support in Sierra Leone at the start of the Project was limited⁶⁰ and the relationship with the ministries and agencies of the government had not yet been fully established. Under such circumstances, the permanent presence of a Japanese expert in the Ministry contributed to deepening the relationship of trust between the Government of the recipient country and JICA. On the other hand, during the extension period after 2016, no Japanese experts were stationed at the Ministry as more focus was on activities in the local development. As a result, the promotion of the Guideline dissemination and inter-donor coordination at the center were lacking. Thus, even if the project's direct target area is a rural area, if the effects of the project are to be disseminated over a wide area, long-term placement of Japanese experts at the central government will enable them to work directly on policy formulation and institution building, build good relationships with the central government, and promote donor coordination.

5 Non-Score Criteria

5.1 Performance

5.1.1 Objective Perspective

None in particular.

⁶⁰ During the implementation of this Project, it was a field office, not the current branch office.

Appendix 1: Achievement of Results

Output	indicator	Status of achievement at completion
Output 1 The District/Rural Development Model in Kambia and Port Loko Districts is established through pilot and model Projects.	Indicator 1-1: The final Draft of the Rural Development Handbook (final version) is approved. Indicator 1-2: The final Draft of the District Development Handbook (3rd Edition) is approved.	<Achieved> The Rural Development Handbook and the District Development Handbook were compiled into a single volume as the Local Councils' Development Operational Guidelines. ⁶¹ The Minister's signed Guidelines were officially released in September 2017.
Output 2 Capacities of District Councils and WCs in Kambia and Port Loko Districts are developed for more effective and efficient District/Rural Development Management.	Indicator 2-1: 100% of participants of training implemented the Action Plan by October 2014. Complementary Indicator 2-1: Capacity building of WCs Indicator 2-2: The result of the target two districts in the Comprehensive Local Government Performance Assessment System (CLOGPAS) is improved by October 2014.	<Achieved> Indicator 2-1: Of the 61 KDC and PLDC training participants, 56 developed action plans and all implemented the same. ⁶² Complementary Indicator 2-1: Capacity building of the WCs was confirmed by observation that the actual role is being played through on-the-job training by the pilot project. ⁶³ Indicator 2-2: CLOGPAS has not been updated since 2015. ⁶⁴
Output 3 The system to disseminate District/Rural Development Model to each district is established by MLGRD.	Indicator 3-1: The methodology and frequency of dissemination of the District/Rural Development Model to the country are decided. Indicator 3-2: Annual dissemination plan is made.	<Achieved> Indicators 3-1 and 3-2: Short, Medium and Long term dissemination plans have been developed for the national dissemination of the Guidelines ⁶⁵
Output 4 Practical capacities, including the ability to apply into Ebola recovery, are developed in the five districts of the Northern Region.	Indicator 4-1: On-the-job training for all processes in accordance with the Guidelines is provided through the recovery pilot Project. Indicator 4-2: Training on local administration in disaster recovery is conducted.	< Almost Achieved> Indicator 4-1: The Ebola recovery pilot projects in all five target districts were implemented according to the Guidelines as on-the-job training for district councils and WCs. However, due to time constraints, the final step "Project Review/Evaluation" could not be conducted. ⁶⁶ Indicator 4-2: Training in Japan was conducted twice with the objective of acquiring knowledge and methods on Japan's experience in regional development and disaster recovery and being able to apply them in their own work, and 12 persons (6 persons/times) participated. ⁶⁷

⁶¹ Source: Final Report (2019) p.5-5.

⁶² Source: First Terminal Evaluation Report (2017) p.11.

⁶³ Source: Training Plan Expert Report (2012)

⁶⁴ Source: Second Terminal Evaluation Report (2018) p.10.

⁶⁵ Source: Final Report (2019) p.5-7 to 5-11.

⁶⁶ Source: Final Report (2019) p.7-18.

⁶⁷ Source: Final Report (2019) p.6-2.